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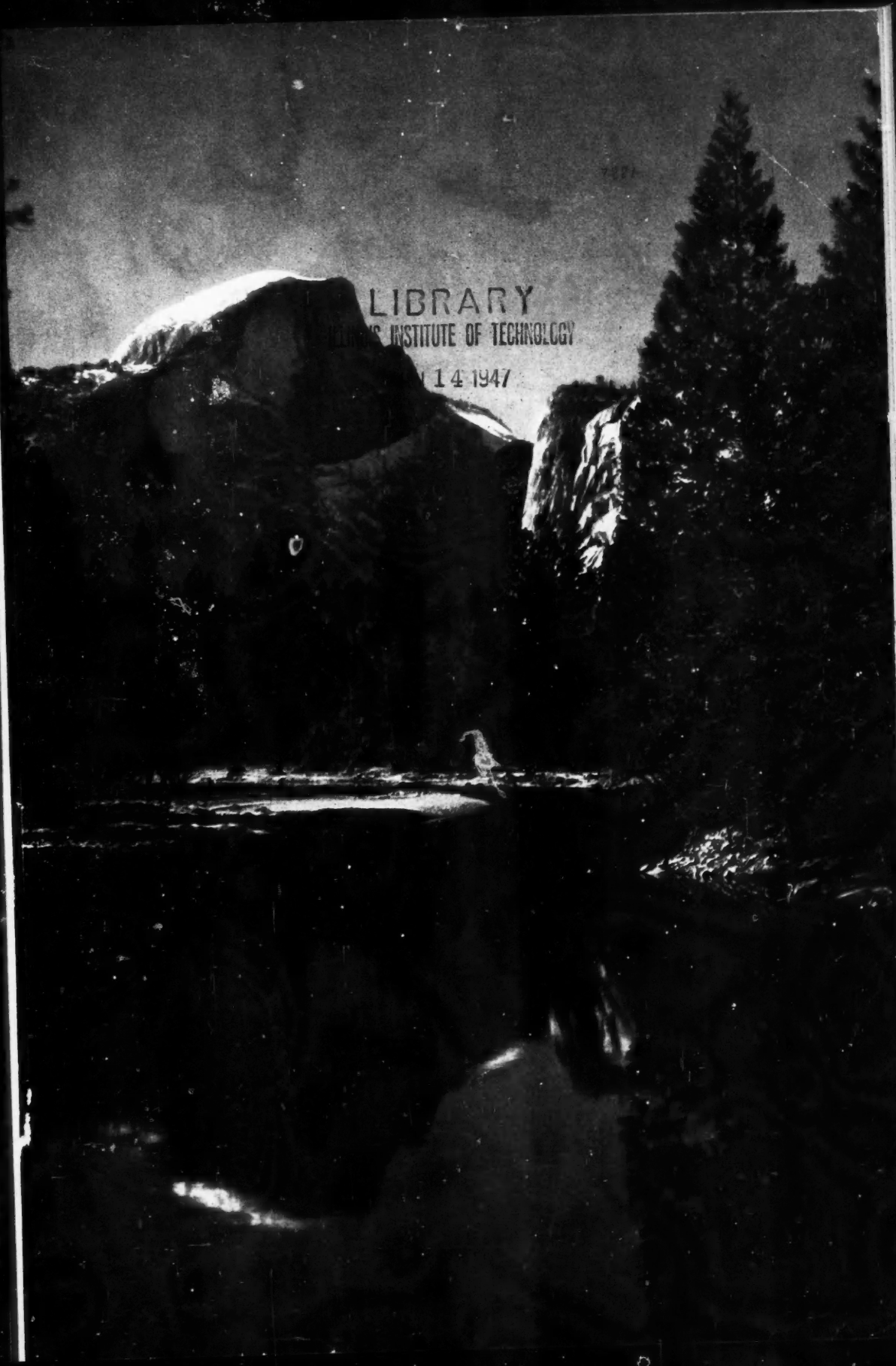

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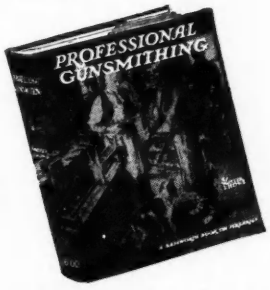


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## RIFLEMAN WORDS . . .

Here, as promised, is the first installment of a monthly "lexicon for shooters." Each month, this column will be devoted to a few words peculiar to the shooting game and, all too often, puzzling to the newcomer. Each of them was selected from an article in this issue.

BULL PUP—A rifle whose over-all length is decreased without shortening the barrel or action, by stocking the gun so that the metal parts come nearly all the way back to the end of the stock. This shortens the gun approximately the distance from the trigger guard to the butt plate.

BULLET ENERGY—The energy possessed by a bullet in flight, which is a measure of its ability to do work on the object it strikes. This is *not* the same as killing power.

CALIBER—The diameter of the bore of a firearm expressed in decimal fractions of an inch or in millimeters.

CANTING—Tilting the rifle to the right or left around a longitudinal axis. In other words, failing to hold the sights exactly vertical when the rifle is in firing position. The main effect is to cause the bullet to strike to the right or left of the intended point.

DOUBLE ACTION—Usually applied to pistols or revolvers. The hammer can be cocked and the gun fired solely by a pull on the trigger.

EXTRACTOR—Metal claw or hook which engages the rim of the cartridge when it is seated in the chamber. When the action is opened, the extractor moves to the rear, withdrawing the empty case from the chamber.

FLAT SHOOTING—Term applied to combination of rifle and bullet which results in a trajectory with the least curve from rifle to target. This occurs when the bullet has the highest average velocity between the rifle and target.

FLINCHING—An involuntary muscular or nervous twitch or jerk at the instant of firing.

HIP REST—For a right-handed shooter, the shooting position in which the left elbow rests against the side of the body just above the hip.

KILLING POWER—The relative ability of one bullet as compared with another to kill game with certainty and dispatch.

MERCURIC PRIMERS—Primers containing fulminate of mercury as one of the ingredients. This fulminate will, if not guarded against, lead to damaged bores and weakened cartridge cases.

RECEIVER—That part of the rifle which houses the bolt or breechblock and trigger mechanism. The front of the receiver is threaded to take the barrel.

RELAY—Competitors are arranged into numbered groups to facilitate the running of a rifle or pistol match. The number of men in a relay is determined by the number of firing points. As the first relay is on the "Firing Line" the second relay waits on the "Ready Line."

SINGLE ACTION—Usually refers to pistols or revolvers. The hammer must be cocked by hand for each shot, and cannot be cocked by a pull on the trigger.

TRAJECTORY—The curved path followed by a bullet in its flight through the air.

WILDCAT CARTRIDGE—A cartridge built to individual ideas and differing from standard factory production cartridges, the idea being to obtain increased performance.

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During the year just closed, well over 100,000 Americans were enrolled **for the first time** as members of the N.R.A. Most of them joined on the recommendation of a friend. Thus, the membership of our Association—your Association—was more than **doubled** within the past year—a fitting celebration of N.R.A.'s 75th year of service to the shooter-sportsmen of America. Yes, America is on the way —once again—to becoming "A Nation of Riflemen." And the N.R.A. is now a National Association in fact, as well as in name. But once again we ask—

*What* is ahead in the next quarter-century? Where will the N.R.A. and the organized shooting game stand in relation to other American activities when 1971 brings our Centennial Celebration? Will we have a million Americans imbued with the love of guns and benefiting themselves and the nation with the healthy bodies and minds, the good sportsmanship and the good citizenship that comes from days spent on the range and in the hunting field? Or will we have a nation disarmed by unwise anti-firearms laws; citizens whose only knowledge of weapons is what they have learned by visiting a museum; men who have forgotten the thrill of a target match or of spicy mornings in the hunting field.

**The answer lies in the hands of the men and women, boys and girls who are the National Rifle Association of today. Let us carry on in the traditions that have made our Association great at the end of its 75th year: Talk shooting, sell shooting, pull hard and pull together—and the future is insured!**

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# *Incidentally . . .*

Just the other day a long, poorly-typed, badly-punctuated, misspelled manuscript came across the editor's desk, introduced by a note which after corrections, would read something like this: "I am ashamed to submit so badly written an article, but please bear in mind that I am an old hunter and trapper, away out here in the desert, trapping coyotes for the state game department. I am not a writer and as you can easily see, not a typist. My time from daybreak to dark belongs to my employers. But since the nights at this season have lengthened somewhat beyond my usual hours of rest, I am usually found squatted by my fire some two hours before daybreak, sipping coffee and going over the gun lore I always find so interesting in THE AMERICAN RIFLEMAN. In attempting to put down some things about shooting I've learned the hard way, I borrowed a portable typewriter from a friend, and with a smoky kerosene-burning camp lantern at my elbow, and plunging into my hunt and peck system, I've punched out this piece, possibly destined for a convenient waste basket."

That's the way many of our manuscripts come to us. But none of them are destined for the waste basket. Every one is read carefully, no matter how poorly written, in the hope of discovering (as we did in this instance) a new writer, steeped in the lore of guns and the outdoors, whose experience may be valuable to our readers. Oftentimes, the choicest homespun is to be found in such manuscripts. In such cases, our re-write men spend hours going over the manuscript, organizing the thoughts, salvaging the gems, discarding the irrelevant. The re-written piece is sent back to the author for comparison with his original draft. And in such a comparison, if he really has the stuff of which writers are made, he learns and develops, is encouraged to try other writings . . . and a new by-line eventually appears in THE RIFLEMAN.

☆ ☆ ☆

More often, your editors find the material to be sub-standard, quite ordinary, or the subject already covered in the hundreds of manuscripts, accepted and paid for, waiting in our files until a certain balance of subjects in any one issue is needed.

We receive from fifty to one hundred manuscripts each month. A card of acknowledgment goes to the writer immediately . . . the manuscript is then put in a special jacket and assigned to various staff men here whose individual opinions are requested. If the consensus favors acceptance for publication, then it is discussed in an editorial conference. Many times, an article of special technical significance is sent to a recognized expert in that field, outside the office but available for his opinion as an *ex-officio* member of our board of reviewers. In this way we try to maintain the high degree of authenticity in RIFLEMAN articles. This, by no means, removes the many controversial matters within the RIFLEMAN's diversified interests. Some articles, in fact, are published because they *are* controversial, or provocative. But those are the author's own ideas, and he has a right to them, when so labeled.

☆ ☆ ☆

But THE RIFLEMAN does not depend only on articles submitted. Most of the major subjects are planned and written on request assignment. Or, we may send one of our editors to get the story needed. That's the case of our article on pistol champion Harry Reeves, to appear in the February issue. Associate Editor Raymond Stann was sent to Detroit to spend days and long evenings talking with Reeves . . . on "how he does it." Stann's next assignment is a similar visit with G. Wayne Moore, the new small bore rifle champion.

For our lead article in this issue, Major General Julian S. Hatcher, head of our technical division, travelled many miles re-visiting arms and ammunition plants, interviewing officials, endeavoring to find out production prospects for 1947. We felt that no one subject would be of more interest to all the shooting fraternity. Shooting is still the most popular sport . . . with more actual participants than any other game. And to take care of the ever increasing popularity, there must be more guns and there must be ammunition. So, we know you'll enjoy General Hatcher's survey. And we just thought, you would continue to enjoy the many other articles in this or any other issue, if you knew something of their selection, and their origin.—W.F.S.

## COVER

**The stately outline of Half Dome, in California's Yosemite National Park, duplicates itself in the still, slowly-moving waters of the Merced River to form a landscape of almost breathtaking dignity. Alert readers will discover a note of unfamiliarity about a familiar National Park landmark . . . the photograph has been reversed to fit the proportions of our cover. Our Kodachrome is by Joseph Muench of Santa Barbara, California.**


PUBLISHED MONTHLY BY THE NATIONAL RIFLE ASSOCIATION OF AMERICA, 1600 RHODE ISLAND AVENUE, WASHINGTON 6, D. C. DOMESTIC RATES (NORTH, SOUTH, AND CENTRAL AMERICA) $3.00 A YEAR; $5.00 FOR TWO YEARS, ELSEWHERE, $3.60 A YEAR; $6.50 FOR TWO YEARS. ENTERED AS SECOND-CLASS MATTER, APRIL 1, 1908, AT THE POST OFFICE AT WASHINGTON, D. C., UNDER ACT OF MARCH 3, 1879.


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# The AMERICAN RIFLEMAN

*Official Journal of the National Rifle Association of America*

VOLUME 95 NUMBER 1

JANUARY 1947


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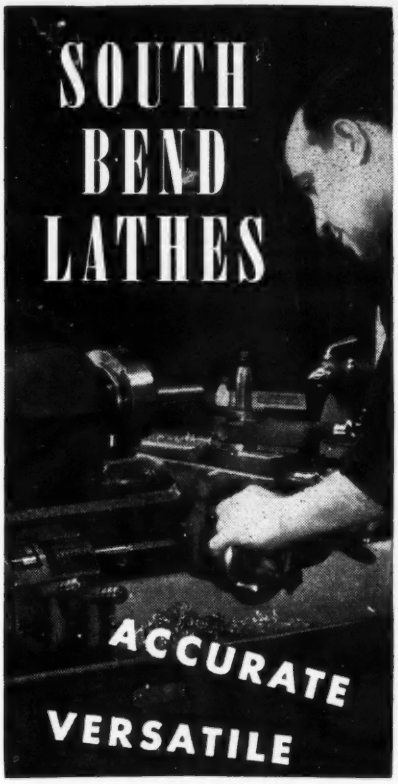


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"The landed peasants or farmers are capitalists in agriculture. . . . This is the most numerous element of the bourgeois class, and the decided enemy of the revolutionary proletariat. . . . The revolutionary proletariat must therefore immediately begin to prepare the necessary force *for the disarming of every single man of this class.*

"The petty urban bourgeoisie, which continuously wavers between extreme reaction and sympathy for the proletariat, must likewise be *neutralized.*

"One of the chief causes of retarding the revolutionary labor movement in the advanced capitalist countries lies in . . . a comparatively more solid . . . group of the 'labor aristocracy' (who enjoy better working conditions and wages and who are) impregnated with the spirit of craft narrow-mindedness, petit bourgeois and imperialist prejudices. Not even preliminary preparation of the proletariat for the overthrow of the bourgeoisie is possible without an immediate, systematic, *widely organized and open struggle against this group.*

"The Soviet State *completely disarms the bourgeoisie* and concentrates all arms in the hands of the proletariat."

The above quotations are from the official translation prepared for the American Communist Party of the Theses and Statutes of the Communist International, now publicly available in "Blueprint for World Conquest." *

"REDS DEMAND ARMS REGISTRY
"Sportsmen Oppose Proposal"

"Communist Party inspired demands that all persons in Los Angeles be required *to register all firearms* they possess was the subject of a public hearing yesterday before the public safety committee of the City Council.

"Jane Wilson, chairman of the legislative committee of the Communist Party, led a small group favoring adoption of an ordinance that would require such registration."

That quotation is from the Los Angeles *Examiner,* September 16, 1943.

"Organize strife and combat groups; obtain arms in foreign countries; . . . formulate plans for *disarming police and loyal troops;* break up groups of *loyal fighting workmen.*"

That quotation is from a circular issued by the Communist Party in Oklahoma on June 8, 1940, and published in the Congressional Record on May 23, 1941.

"Budapest, Hungary—Luszlo Rajk, minister of the interior, said today that 220 organizations had been dissolved in order to protect more efficiently the democratic system of the state. He said *80 pistol clubs and 27 hunting clubs were among those abolished.*"

That quotation from Communist dominated Hungary appeared as an Associated Press dispatch dated July 8, 1946.

"Bulgarian Communists are heavily armed *while all other Bulgarians are disarmed.*"

That quotation is from The Christian Science Monitor of October 6, 1945.

Did you say there are no subversive elements, no crooks or weaklings who might be "bought," in your local government or police—in the Federal government or police? Here is one more quotation—this from a speech by J. Edgar Hoover on December 10, 1945:

"I know of instances where ex-convicts with glib tongues have actually succeeded in taking part in police training and in surveying police needs. . . . The Fascist-minded tyrant whom we conquered on the battlefield is no different from the American Communist corruptionist *who now uses the tricks of the confidence man* until his forces are sufficiently strong to rise with arms in revolt."

Any intelligent American, reading these official statements, and these factual news reports, will understand why every law enforcement officer who is able to see beyond the end of his own nose; every veteran who has fought to preserve the American system of government; every patriotic citizen of this country *is opposed to the political registration of privately owned firearms!*—C. B. L.

* Human Events Press, Washington, 1946.

**MAJOR-GENERAL JULIAN S. HATCHER, head of the NRA's Technical Service, sums up results of the latest NRA SURVEY OF THE ARMS AND AMMUNITION INDUSTRY . . .**

# 1947 PRODUCTION PROSPECTS

WHENEVER AS MANY AS TWO SHOOTERS have got together during the past year, the conversation has invariably turned to the gun and ammunition shortage, with much speculation as to the reason for it, and the inevitable question as to when it would be ended.

The critical shortages have been those of lead and copper. They are still with us. Paint makers, battery producers and ammunition manufacturers are all dependent on lead, and the Government has found it necessary to ration the inadequate supply. Each maker has been told how much lead he is permitted to use each quarter. Even if he has more on hand he cannot use it. Ammunition makers have been forbidden to make gallery ammunition (.22 Short), and Skeet or Trap loads. These restrictions are still in effect.

In the face of these difficulties, it is surprising to find that several of the large companies have managed to produce more guns and cartridges in 1946 than they normally made in the years just before the war. Dealers complaining about how little they received have been surprised when they were shown that their allocations for 1946 were actually greater than for, say, 1940. With bare shelves staring at them, they just can't figure out where the supply has gone. The answer is that with the accumulated demand, the stuff goes out as fast as it comes in—aggravated, no doubt, by the usual psychological reaction, under such conditions of scarcity, to overbuy whenever possible.

The general picture for 1947 is that nearly every element of the arms and ammunition industry is producing in volume. They are trying to catch up with large backlogs of orders, which represent not only immediate consumer demand but the large quantities necessary to fill the pipelines between maker and user. Factory warehouses must be stocked, as well as jobbers' and dealers' shelves.

To be more specific, here are reports from each company, in response to a recent RIFLEMAN survey of the arms and ammunition industry:

## COLT'S

The Colt company is back in production again, and actually making shipments in volume. Mr. Graham Anthony, the president of Colt's, told the RIFLEMAN:

"We certainly appreciate the opportunity to give your readers an accurate picture of Colt's, both now and for the future. We were able to start limited shipments late in September. So far, our production has been confined to the Woodsman, 4½ inch and 6½ inch, the Official Police in both .38 Special and .22 calibers, and with the .45 Automatic, the Super .38 and the .22/.45 Conversion Unit coming through in fair quantity.

"The Officers Model has been available only in .22 caliber, but in nothing like adequate volume. There is little chance of our being able to supply this model in .38 caliber for many months to come.

"I know you will be disappointed to know that no Match Target Woodsmen are ready as yet. However, late spring will see the first shipments of a new Match Target that will give the shooter all he is looking for in this type of arm.

"It certainly is pleasing to be able to renew our active and pleasant relations with both the trade and the shooter. We look forward to the future with every assurance of an even greater activity than in the past."

## REMINGTON

The duPont-controlled Remington Arms Plant at Ilion, the Remington cartridge plant at Bridgeport, and the Peters Cartridge Company at Kings Mills, Ohio, have already managed to achieved excellent production of Remington and Peters guns and ammunition, and expect during the coming year to supply a considerable volume of production against their very large backlog of orders.

Remington and Peters have recently brought out a line of shot shells with the new "Flat Top Crimp," which is proving very popular. By doing away with the top shot wad, they have removed the possibility of having this wad interfere with the shot column and thus cause "blown" or hollow patterns.

As to production prospects, Mr. Gail Evans, Manager of Public Relations, told us:

"In 1947 the Remington Arms Company, Inc. expects to produce not less than the quantity of sporting ammunition produced in 1946. This also applies to products of the Peters Cartridge Division. The availability of ammunition is contingent upon government allocation and control of lead. It is hoped that 1947 delivery of Remington firearms may be increased over 1946, provided no conditions occur to reduce production.

"It is expected that the increased demand for sporting firearms and ammunition will continue. Therefore, it probably will be necessary to continue sales on an allocation basis in 1947."

# Federal Cartridge

The Federal Cartridge Company at Anoka, Minnesota, specializes in .22's and shot shells. As a new development, their Monark and Hi-Power shotgun shells now have a frangible top wad, made of a very brittle waterproof material that is strong, yet shatters completely under shock. It makes a perfectly good and serviceable top wad, holding the shot in and the moisture out, but which, when the gun is fired, shatters into small pieces. As in the Remington "Flat Top Crimp," there is no top wad in front of the shot column to deflect it and thus cause possible blown patterns. Federal does not claim that this frangible wad will improve a good pattern, but they do say that it will eliminate the occasional bad one formerly to be expected. From the manufacturing viewpoint, this wad retains all the advantages of the old pasteboard top wad, which allowed the crimp to be adjusted to suit varying lots of powder.

Federal .22's are pretty well thought of on account of the efforts the company made during the war to develop a priming that would hold up during storage in hot and humid places. Federal was not satisfied with the regular tests, and for their own information stored primed .22 cartridges in humidifiers under extreme conditions of heat and moisture. They continued to experiment until they developed a mixture that stood up under almost unbelievable conditions. Federal tells us that they have been, and still are, producing up to the limit of their allocation of lead.

## HARRINGTON & RICHARDSON

The Harrington & Richardson Arms Company was tied up by a strike during many months of 1946. However, their Worcester, Mass., plant is back in full production of their well-known line of .22 caliber rifles and Defender and Sportsman double-action revolvers, along with H&R handcuffs and leg irons. Mr. J. W. Baldwin, H&R sales manager, told THE RIFLEMAN'S representative:

"The year 1946 was rather unfortunate for us, as our factory was closed in January, before we could reconvert to commercial production, remained closed for seven months, and seriously affected our 1946 output of firearms.

"Looking ahead to 1947, with today's decidedly unsettled conditions, especially in the raw material industry, I can only say that our production will depend upon receipt of materials and general conditions. If we have anything like normal conditions, we will accelerate our factory schedule and manufacture more guns than ever before, all in precision, quality merchandise. We also plan, if conditions permit, to add two or more new firearms to our line in 1947. Full details will be announced when and as these new models are ready."

# MARLIN

The Marlin Firearms Company, New Haven, Connecticut, is headed by Mr. Frank Kenna (pronounced Ken-*nay*), with Mr. T. F. Lynch as factory manager. Marlin has been in business longer than most shooters can remember. At this writing, they seem to be going full steam ahead. Mr. Charles A. Stein, of the New York office, gave the NRA the following summary of their production schedule:

"Models 81-DL, 39-A, 36 Carbine and 36-A are available and in great demand. The .32 Special high-power rifles will be ready early in the year. The Model 36 Sporting Carbine in .30-30 caliber will be available before then. The Model 80-DL will be ready in February. This also applies to the C Models—80-C and 81-C.

"You are thoroughly familiar with the adverse conditions which have existed in the firearms industry for some time and this, of course, has retarded output and subsequent distribution. Every effort is being made to increase production at the present time."

# SMITH & WESSON

Smith & Wesson, Springfield, Massachusetts, has a new and very aggressive president, Mr. Carl R. Hellstrom. He is a highly effective gentleman who knows production. He took time to show THE RIFLEMAN representative the new safety hammer block that he designed, which should absolutely prevent any discharge of a Smith & Wesson revolver from any cause except a pull on the trigger—or, of course, a fire. If you should heat the gun red hot, it would go off. This new trigger block is very cleverly timed so that if the hammer is knocked off the sear notch, the safety will move faster than the hammer, and be there ahead of it, to keep it from hitting the primer. Mr. Hellstrom is a pretty strong-minded individual and believes in his own designs. To prove it, he has loaded a S&W revolver, cocked the hammer, then hurled the gun across his office against a steel safe, just to prove it can't go off. No Milquetoast, this Mr. Hellstrom!

As to anticipated production for 1947, S&W president Hellstrom says:

"At present, we're producing the .38 Military and Police square-butt model in blue or nickel finish, with barrel lengths of two, four, five, and six inches. Deliveries are averaging sixteen to twenty weeks after date of order on blue finish guns. The nickel finish models are somewhat slower. The new K-22 Masterpiece is also in production, and shipments will be made by the first of the year. The round-butt .38 Military & Police model is not yet available, and production of this gun will not be undertaken until the drop-forging department can catch up on requirements for frames now being forged.

"The '357 Magnum' and other heavy-frame models will probably not be available for at least another year. Incidentally, a full-length barrel rib, micrometer click sights and Magna stocks will be furnished as standard on all heavy-frame target models.

"The new K-32 and K-38 Masterpieces will both be produced during 1947, early deliveries of these models starting about the middle of the year. Light-frame models, such as the 22/32 Kit Gun, .38 Terrier and .32 Hand Ejector will not be manufactured until the demand for medium and heavy-frame guns has been satisfied to some extent.

"We believe shooters the country over will be interested to learn that in spite of all difficulties, considerable progress has been made during the current year on our new factory. A new range is now being constructed, where future Smith & Wesson revolvers will be proof- and function-tested, as well as targeted. The range will include a machine rest and other facilities for test work at distances up to fifty yards.

"The new plant is located in East Springfield, and a group of modern factory buildings of nearly 250,000 square feet are already occupied and in production on the 126-acre property. When completed, these buildings will provide space and facilities for production of new peacetime items yet to be announced. Many new machines of advanced design are being purchased with a view to increased volume of production and even greater precision in manufacture. Some of these have already been installed and are now turning out work on our postwar revolvers.

"There undoubtedly remain many long months of strenuous effort before we can complete and occupy the new plant. During this period production must of necessity be limited. However, the outlook for 1947 is definitely brighter, and S&W is looking forward to a year of greater production of finer guns for the ever-increasing ranks of American handgun shooters."

## J. C. Higgins

The J. C. Higgins bolt action repeating shotgun, sold by Sears-Roebuck, is made in a highly efficient plant, where a very large number of these guns is turned out daily. Sears is exacting as to quality, and the guns have to be right. This is thoroughly taken care of by the fact that the manager of the plant is a highly accomplished production man and gun designer with whom we have been well acquainted for years. There should be plenty of J. C. Higgins guns this year.

## WINCHESTER Western

Olin Industries, Inc., have two principal divisions in the arms and ammunition industry—the Winchester Repeating Arms Company Division at New Haven, Connecticut, and the Western Cartridge Company Division at East Alton, Illinois. One never ceases to be amazed at the amount of attention the Olins give to pure scientific research. They believe it pays off in good hard cash, and it must, or they wouldn't go in for it. Such things as ultra high-speed movies, showing how the extractor pulls the cartridge out, how the ejector throws it; X-rays showing how the shot charge travels inside the barrel of a shotgun; even X-ray movies showing the action of the coiled springs inside a semiautomatic.

As to the 1947 prospects, Mr. W. S. Allen, Sales Manager of Winchester, says:

"Before considering what Winchester expects to do in 1947, the shooter may be interested in a brief review of our 1946 accomplishments.

"Winchester was the last arms manufacturer to have wartime contracts canceled, and our plant was producing arms and ammunition for the government even after V-J Day. In spite of this late start, reconversion was effected promptly, and in 1946 we were able to allocate to our distributors more ammunition than either we or they thought would be possible. Our over-all production of firearms was only slightly less than that of a prewar year, although on certain models our supply was considerably below normal.

"For 1947 we have a production schedule that calls for a larger quantity of firearms than we have ever produced before in any one year. However, there is a five-year backlog on firearms and we doubt that the pipe lines through our distributors and dealers can be filled sufficiently to assure a normal flow of sporting arms into the hands of sportsmen during 1947. The quantity of ammunition we will be able to produce will be largely dependent upon the amount of lead allocated to us by the government. Even though we have a good supply of ammunition, both shot shell and metallic, during 1947, we doubt if it will be enough to supply all the old shooters and the millions of new shooters with the complete requirements."

## HIGH STANDARD

In recent years the High Standard Manufacturing Company of New Haven, Connecticut, has become quite a factor in the arms business. The company owes its existence largely to one of the grand old men of the industry, A. W. (Gus) Swebilius, who is not only a top-notch designer, but a number one factory manager and production expert as well. After a session in Florida, due to ill health, he is back at High Standard, working again in high gear. The president of High Standard is Mr. Fred E. Bradley, formerly of Marlin.

High Standard did a lot of work for the Ordnance Department during the war, but are now back on their regular line, and are in full production on their Model H-D pistol. They also showed THE RIFLEMAN's representative a .38 Special automatic, which looks very much like their well-known .22. On this model the barrel can be slipped off in an instant, so that a change from a long barrel to a short one can be made in a matter of seconds. They report that "Smitty" Brown, U. S. M. C. pistol ace, had suggested that, for .38 target practice, they might find it practical to have a gun regularly furnished with two barrels, so the shooter could keep the sights on one permanently set for twenty-five yards and the other for fifty.

Mr. Bradley told us: "We have been in production on the Model H-D Military target pistol since December, 1945, but the orders on hand and those coming in daily still exceed the number of pistols that we can produce to a considerable extent. Conditions beyond our control have prevented us from expanding the business as much as would be necessary, although we are now able to produce more than double the number of pistols that we were getting out four or five months ago. We are starting production on the .380 automatic, but it will take from five to six months to set up and get the pistols coming off the end of the line. We are not yet completely tooled up for the .38 Special caliber, and it will, therefore, be some time before arms for this caliber will be ready for the market."

## O. F. Mossberg & SONS, INC.

O. F. Mossberg & Sons, Inc., in New Haven, Connecticut, is another very smart outfit of gunmakers. Their regular line includes very good and inexpensive shotguns, .22 caliber rifles, rifle telescope sights, and spotting scopes, as well as an excellent spotting scope stand.

Mossberg is noted for standing squarely behind their product. As Harold Mossberg explains it, they cater to the chap who wants satisfactory goods, but who hasn't very much money to spend. So, when a fellow has any (*Continued on page 45*)

# European SINGLE SHOTS

By C. H. HOWELL

THE SINGLE-SHOT RIFLE, though long obsolete as a practical weapon, still interests many riflemen. Perhaps some of this interest is a natural heritage from the Kentucky rifle, but more of it is a result of the fine accuracy which has been attained with the old Ballard, Stevens, Sharps-Borchardt, and Winchester single-shot rifles.

Some of these old rifles are still being used in their original calibers, but most of them have been rebarreled to shoot one of the newer, small-bore, high-velocity cartridges. Lack of manufacture, ordinary wear and tear, and continued use of the available rifles have reduced the supply of actions of domestic manufacture almost to the vanishing point. However, with the cessation of hostilities and the acquisitive characteristics of the American soldier, a new source of single-shot rifles has developed. A number of these European rifles, and particularly their actions, offer interesting possibilities to those who wish to make a single-shot rifle for some particular purpose, or to shoot as a pastime.

Descriptions of domestic and some of the better-known English single-shot rifles have been published in THE AMERICAN RIFLEMAN at various times, but little information is available at the present on other types of European rifles. Since most riflemen are familiar with the general appearance of Schuetzen or target rifles, and sporting arms in general, it is believed that a review of the characteristics of the more common actions will be of greater interest than a detailed description of sights, stocks, and barrels.

The Aydt action, or "System Aydt," as it is often marked, can always be identified by the two kidney-shaped parts on the outside of the left-hand side of the receiver (Figure 1). The larger of these parts is the extractor, while the smaller consists of the lever pin and retaining spring. Only the original Aydt actions are made in this way, while some other actions of similar design have an extractor placed on the inside of the

**A SUBSTITUTE FOR OUR VANISHING SINGLE SHOT ACTIONS . . . "IMPORTED" FROM EUROPE BY OUR HOMECOMING SERVICEMEN**

receiver in more orthodox manner. The Aydt action is a rolling-block type, having a receiver quite deep through the body, and the long barrel support is a distinguishing characteristic of this design. The front portion of the barrel support is threaded for approximately seven-eighths inch, while the remainder of the barrel support is smooth inside and bored to a diameter of approximately three-quarter inch. This feature of Aydt design rather limits the size of the cartridge case for which the barrel can be chambered, unless one reduces the diameter of the barrel shank more than might be safe. The receiver is open along almost all of its bottom length, and the interior surfaces are straight and smooth. A large locking shoulder is formed at the beginning of the upper tang, slightly over an inch behind the end of the barrel support. On the left-hand side of the receiver are holes which provide seats for the breechblock pin, operating lever pin, the extractor, and the extractor guide studs. A rear sight support with a locking screw is an integral part of the tang.

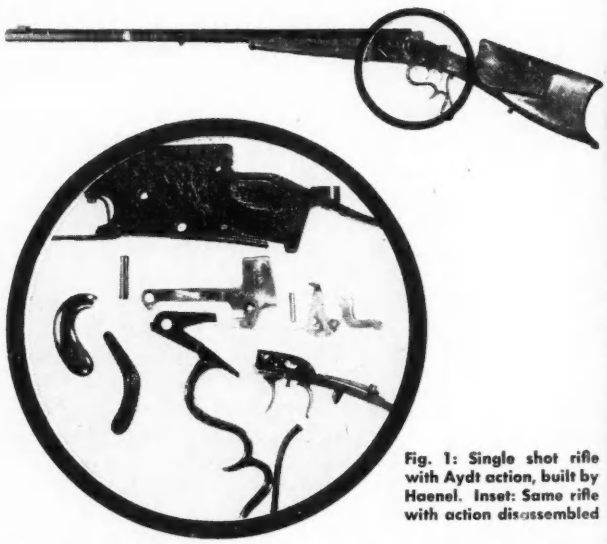


**Fig. 1: Single shot rifle with Aydt action, built by Haenel. Inset: Same rifle with action disassembled**

The Aydt breechblock is an interesting type. It is formed from a single forging in the shape of a large-headed "T." A slot is cut part way through the center of the block to house the hammer, while the heavy extension forward of the block is bored to receive the breech lock pin, which passes transversely through the block into the sides of the receiver. Hook-shaped projections at the bottom of the block engage in operating fingers on the lever to rotate the block up and down.

The hammer is mounted completely inside the block and has an extremely short travel. The firing pin is an integral part of the hammer, but could have been made replaceable quite easily. The mainspring is flat, and is recessed into the bottom portion of the hammer. Across the back of the block is a dovetailed plate which covers the recess in which the hammer moves.

It will be noted that the rear lower portion of the breechblock is rounded. This surface of the breechblock bears against a round stud on the lower portion of the extractor, which projects through the lower elongated hole in the receiver side wall when the action is opened. Since the extractor is pivoted about a shorter-length stud near its center, the top of the extractor moves toward the rear. The extractor is moved

forward by the action of the face of the breechblock rising against its rear face when the action is closed.

The lever is a massive forging, with operating fingers projecting upward at an angle. These fingers bear up against abutments on the bottom of the breechblock extension in the closed position. Upon opening the action the fingers rotate downward and catch in the horizontal slots near the bottom of the breechblock.

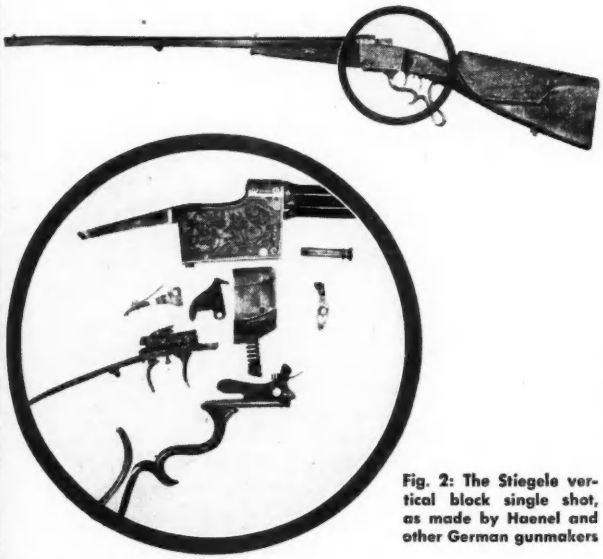


**Fig. 2: The Stiegele vertical block single shot, as made by Haenel and other German gunmakers**

The sear on the Aydt rifle is placed at the forward underside of the top tang, just behind the locking abutment which bears against the rear of the breechblock. The lower tang, which contains the set triggers, is separate from the receiver and is fastened to it by lugs which engage in recesses milled into the receiver. Various combinations of set triggers are used in these rifles, and most of them are fine examples of the gunsmith's art.

The stock of the Aydt is attached to the action by two screws, one from the top tang into the stock, and the other from the bottom of the lower tang cut into the upper tang through a plate or bushing. If a cross strut were welded into the receiver just below the junction of the top tang and receiver side walls, without interfering with the action of the sear or trigger, it could be fitted to receive a stock bolt similar to that on the Sharps-Borchardt or Ballard rifles, and would result in a better fastening from the standpoint of accuracy.

Although the deep section of the receiver may present some difficulties in forming a rifle in accordance with generally accepted styles, the Aydt action should be given consideration in planning a rifle where tight breeching, fast lock time, and ease of operation are important. In disassembling actions of this construction, be careful that excessive force is not used in drifting out the pins and wedge-shaped pieces. Most of these parts are hand-finished for assembly only in the proper order, and many of the pins and their corresponding holes are tapered. A few light taps with a brass drift or a brass hammer usually will establish the proper direction to move them.

Another rifle, furnished in a variety of calibers and types by Haenel and other gunmakers, is a simple falling-block action based on the Stiegele designs. A representative specimen of this

**Fig. 3: Vertical block action by Dieter of Munich. Inset shows how few parts make up this action**

type is illustrated in Figure 2. The receiver is considerably smaller than the Aydt style and more conventional in design, resembling in general outline the Sharps-Borchardt. A vertical block, slotted to receive the hammer and the coiled hammer spring, moves in a recess in the receiver under the action of a cam lever formed as a part of the finger lever. The sear is mounted under the top tang in a manner similar to the Aydt action. The extractor is pivoted in the receiver in such a position that an extractor cam on the right side of the front projection of the finger lever bears against the extractor when the finger lever is lowered and the action opened. The breechblock is supported by the receiver for all of its length except for the small projection above the receiver, and the front face of the breechblock pushes the extractor forward when the action is closed.

The lower tang and the trigger mechanism are fitted to this action by a single screw which passes through the for-

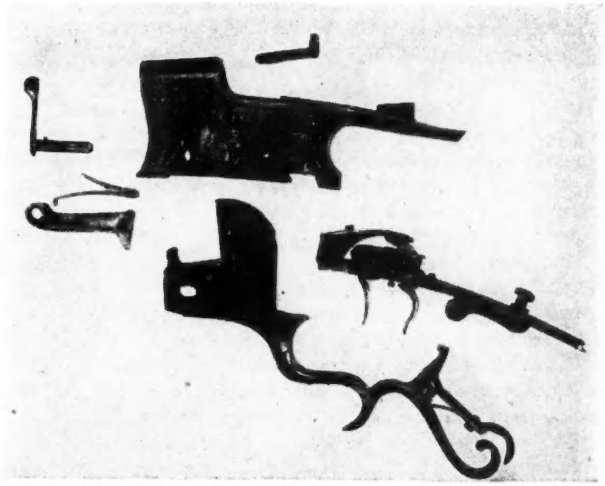


**Fig. 4: Another rifle of German ancestry, this rolling block action is one of the simplest and most reliable of its type, with strong, heavy construction**

ward dovetailed portion of the bottom tang into the receiver.

Such rifles having vertical-block actions are perhaps the most useful of any of the common European types for rebarreling, since they already possess many desirable features: Adequate strength, simplicity, short hammer travel, coiled mainspring, freedom from side wall obstructions, and ease of stocking. In addition, alteration of the extractor and firing pin are simple, while the face of the breechblock may easily be bushed if desired.

**Fig. 5: Another Dieter product, this falling block action is similar to early Martinis in many details**

In comparison with the English Farquharson actions, the superiority of design of the Stiegele becomes particularly apparent. Had the latter been available in this country before the war, many more of them would have been used.

Another of the rifles illustrated (Figure 3) made by Dieter, of Munich, represents a development of the vertical-block rifle that excites comment among those who have wished for a modern, high-velocity, single-shot rifle intentionally built to withstand heavy loads. This rifle is chambered for the 7 x 65 mm. rimmed cartridge, which is somewhat similar to the .270 Winchester.

This action does not follow conventional methods of design, since the operating lever is pivoted at the rear instead of at the front of the receiver. The entire operating mechanism — trigger, mainspring, hammer, and operating cam— is contained in the operating lever. This results in a very short receiver, and allows the use of a modern stock for shooting with a telescope. The receiver is quite wide and affords full support to the breechblock, at the same time providing a barrel ring of ample proportions for high-intensity loads. Although the specimens that have been examined are alike in general characteristics, the individual parts are different, hence it is quite probable that these rifles were custom-made products of small craft shops. Certainly the cost of manufacture of this rifle would be prohibitive in this country.

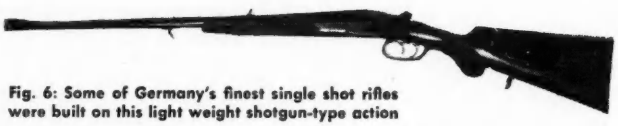


**Fig. 6: Some of Germany's finest single shot rifles were built on this light weight shotgun-type action**

The rolling-block action illustrated in Figure 4 is one of the simplest and strongest of its type. The receiver side walls are very heavy, while the barrel ring is ample in size to hold a thick barrel shank without the excessive length noticeable in the Aydt actions. The operating parts consist of the breechblock, which is forged integral with the operating lever, a lightweight hammer and extractor which moves parallel to the axis of the bore, and a lever pin, in addition to the usual system of triggers and firing pin. The firing pin in this rifle is mounted in the breechblock and is full floating. An elongated hole in the forward portion of the breechblock allows the block and the operating lever to move forward and backward when the lever is opened and closed. The block is locked in the closed position by bearing against abutments in the rear face of the receiver. Since a slight movement is exerted by the explosion of the cartridge against the breechblock and down through the lever, its end is securely fastened by a strong latch which engages in a stud provided for it on the lower tang.

Rolling-block actions of this general type will make fine rifles when rebarreled, although a great deal of alteration may have to be done to the trigger guard or operating lever until it blends well with the outline of a modern stock.

Although the Martini-type action is well known in this country as a descendant of the old Peabody and Peabody-Martini rifles, some varieties of rifle made in Europe represent considerably improved versions of the old favorites. Illustrated is an elaborate Schuetzen rifle (Figure 5) made on a Kessler action. This is simply a Martini action redesigned to provide a floating firing pin and a separate hammer. The hammer is mounted on a base on the lower tang, along with the operating lever and set trigger mechanism. The breechblock is pivoted at the rear in the usual manner. No change has been made in the extractor. This modification affords a much simpler type of construction and would insure better ignition than was possessed by the original Martini rifle. The particular rifle illustrated was made in the shop of J. Dieter, Munich. It is a splendid example of Schuetzen craftsmanship.

Shooters who feel the need of a lightweight single-shot sporting rifle may find their wants satisfied by securing one of the better grades of shotgun-type rifle, such as the one illustrated in Figure 6. Rifles of this type were made in many calibers, some of them for American cartridges. The rifle illustrated is chambered for the 8 x 57R-360 cartridge. It has a full-ribbed barrel, set triggers, top safety, cheekpiece, and a compartment for three cartridges under the stock. It is nicely engraved, and its weight is less than six pounds.

Since the replacement of missing parts, other than those of a minor nature, is difficult and expensive, it is advisable to examine each specimen carefully before acquiring it. All component parts should be present, even if some are broken or damaged, for the unserviceable parts may serve as patterns.

Caution is necessary, obviously, in rechambering European single shots for high-intensity cartridges, either handloads or factory ammunition. Actions of uncertain design or age should be treated as unknown and potentially dangerous, unless one has sufficient knowledge of firearms design to be certain of his ground—or unless he can call on the advice and judgment of someone else who has that knowledge. However, with the actions described here, and within the limitations mentioned, these European single shots may well be the answer to the dreams of many an experimenter, and a solution to the increasing scarcity of suitable American single-shot actions. ◆ ◆ ◆

**AGE-OLD HUNTING CUSTOMS, TYROLEAN STYLE . . . AND A COVETED FEATHER FOR AN AMERICAN SOLDIER'S CAP**

# Tyro in the Tyrol

**Illustrated by GIB CROCKETT**

By ROBERT E. KLEINER

I FIRST HEARD OF CHAMOIS HUNTING early in May of 1945. We were with an armored field artillery battery, near the junction of the Austrian, Italian, and Swiss borders, and I had two full weeks in which to see the beautiful Tyrolean country. There, while talking with the natives, I heard stories of long, arduous stalks in the beautiful high country, far above timber line, for the wary, antelopelike chamois. Those stories aroused my interest, and I was determined to go on a chamois hunt as soon as the chance came. It came, I thought, in July of that same year when I was fishing with an Italian mountaineer in the Italian Alps. He invited me to hunt chamois with him among the rocky heights of the 10,000 foot Adamello range. But before I was able to make the trip I was moved. The plan had to wait until after I had been in Austria two months as a forestry specialist with our occupation forces before I finally was able to go on that promised chamois stalk.

Those chamois hunts start early! On the November morning of the long-planned adventure, we were awakened about five o'clock, my American hunting partner and I, in the Hotel Post of the small village of Tweng, deep in the Alps. We were a good hundred miles south of Salzburg. After a quick breakfast we were joined by two Austrian professional hunters. These men were to be our guides.

They were dressed in Austrian rural costume, including a *Gam's Bart* on the side of their hats—a brush made from the long, fine hair that grows along the spine of the chamois. The little animals are called *"gams"* in Austria. On their backs our guides carried rucksacks, around their necks were thongs holding powerful field glasses, and in their hands they carried long staffs—steel pointed—that the mountain people use in climbing about their rugged country. We split up. My American partner went with one guide, to hunt west of the main valley in which the village lay. I went with the other hunter, to cover the area east of the main valley. I carried a light pack with some Army K-rations, a sweater and raincoat, field glasses, and an 8mm. Mannlicher-Schöenauer hunting rifle with telescope sight.

My hunter and I walked down the road and out of the village to where a crude trail scaled up the east side of the valley. It climbed steeply, with switchbacks every fifty or 100 yards as it wound up the steep east wall of the valley, through snow-blanketed spruce and larch forests. After almost an hour we approached the crown of the ridge where the slope became less steep and the timber more scattered. Here the chamois would come when bad weather drove them out of the higher rocks. We stopped often now, to look for the telltale black of a feeding chamois against the white of the mountains, as it pawed for forage beneath the snow.

Another half hour passed before we came out on the ridge top at the mouth of an Alpine valley. The valley ended abruptly against a high mass of jagged, bare peaks some two or more miles from us to the east. This was chamois country. We went up the valley for a quarter mile or so, and stopped to search the sides for game. None was to be seen.

We began climbing and angling up the north side of the slope toward the left of the jagged mass of peaks at the head of the valley. Before we had gone far, we spotted seven chamois feeding halfway up the sides of the peaks—the older ones feeding quietly

while the kids played and leaped about. The old hunter took a telescope from his rucksack and studied the band of chamois for several minutes.

"They are all too young; not a good buck in the bunch," he said.

We turned left and began to climb out of the high valley toward its north rim. After a stiff climb in the soft snow, we reached the rim. Beyond it lay cliffs—stone spires and country so rugged it seemed even chamois could not live in it. We crossed over the rim out of that first high-country valley, and began to make our way along the main slope of the mountain toward another high valley.

Progress was slow. The steep country with its cliffs and loose snow made travel dangerous. Suddenly my hunter motioned me down. On the slope seventy-five yards in front and slightly below us was a big chamois, feeding quietly. I whispered, "Should I shoot?"

The hunter took a quick look at the animal through his field glasses and answered, "No, it's a female." The creature winded us and bounded off below, into the wild, rugged cliffs, sending small, loose rocks crashing into canyons hundreds of feet below.

We went along the slope and, after a while, stopped for a rest. Looking back to our left, where a sharp, vertical wall of rock stuck out in the main valley, we saw four animals climbing about the face of the cliff. The hunter studied them. One was a fine buck. We agreed that the range was nearly 400 meters and he advised against trying a shot. The range was extreme, and even if hit, the buck would fall so far that it would be difficult to find it. With regrets we saw the buck stand poised on the highest, most inaccessible point for several minutes as he watched the western slope of the main valley. Then he picked his way over the rocks and out of sight.

We, too, moved on, in an opposite direction. The going was increasingly tough as we passed through a thicket of brushlike mountain pine, half covered with snow. At the end of this thicket we looked out over another bare, snowy slope, with a cold wind blowing into our faces. High on the slope were two more animals. We halted, had hot coffee from a thermos bottle that the hunter took from his rucksack, and studied the animals with our glasses. The hunter identified them as a female and a kid. As no bucks came into view, we turned right and began a steep climb up the snow-clad, barren slope.

Now we were directly below the northern end of the mass of jagged peaks that formed the end of the first ridge-top valley we'd entered, as we had climbed out of the main valley earlier in the morning. Our ascending course would put us at the spot where the northern rim of that high valley met the mass of peaks. The climb was hard, the air thin and cold, and the wind whipped snow and ice particles against our faces. It seemed hours before we slipped over the top of the rim and could see the near side of the mass of peaks where we'd seen the first band of chamois.

They were still there, the same band, but more had joined it. There were twelve or fifteen animals now, and they were only 150 yards off. I quickly went into the prone shooting position, set my sights, and waited for the hunter to tell me which one to shoot. He told me which was the better buck, but at that instant the wind blew a cloud of fine, dustlike snow between us and the game and then died down. Just as it cleared, the animals either scented or saw us and began to climb up the side of the peaks. Before I could pick out the large buck again, the visibility went bad. By the time it cleared, the chamois were high up the rocks and out of range.

**"Should I shoot?" I whispered.**

Completely exasperated, we moved down the slope into the ridge-top valley at the foot of the mass of peaks. Here, sheltered somewhat, we ate a cold ration before going farther south across the valley.

After perhaps a half mile we began a gradual climb back toward the mass of peaks. We were headed for a wide hollow that looked like an ancient volcano crater, which lay at their foot.

As we climbed toward the side of this hollow farthest from the peaks, we could see small bands of chamois on the sides of the peaks above the hollow either scent or see us. They rapidly moved up into the rocks of the peaks. For long minutes they would stand on the very tallest rocks, looking down at us. They seemed to observe and understand our every move, and might have been silently laughing at the futility of us creatures of the low altitudes who were trying to catch them.

We approached the rim of the lower side of the hollow and the old hunter motioned me to crawl. Doing so, we slowly raised our heads as we reached the rim and looked across

the 200 to 300 yard width of the hollow to the steep, partly snow-covered side opposite us. There, where the warm afternoon sun struck the slope and melted some of the snow from the forage, were two bands of feeding chamois—five in one band and three in the other. The smaller band contained only kids. The hunter and I scanned the band of five. He put down his glasses with satisfaction and whispered, "The one on the left is a capital buck—he is the one lying down."

I got into shooting position, ready to fire.

"Perhaps it is too far," he added.

"How far, 250 meters?" I asked.

He nodded agreement and I spoke again.

"That's not too far. I'm going to shoot."

Setting the sights at 250 meters I wriggled into a good prone position and looked across the hollow through the scope at the big buck. He was lying on his stomach on a bare bit of earth, with his legs folded ler him as he dozed in the afternoon sun. His head was to the left and, remembering that my rifle shot left, I held the crosshairs about two-thirds back along his body.

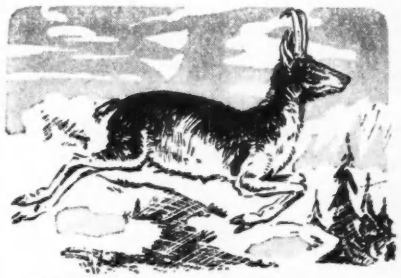
When the bullet hit, the buck jerked slightly. For a second or so he didn't seem to move. The thought, I've missed, flashed through my mind as I finished slamming the bolt shut on a new round. Then, with a convulsive jerk, the buck rolled off the tiny ledge he was resting on, over and over down the steep snow slope, and slid to a stop near the bottom of the hollow. He was stone dead. The rest of the band, their leader dead, milled about in confusion before moving off up the slope. It would have been easy to get in a second shot.

We worked our way to where the dead buck lay and found he'd been hit in the heart, the hollow-point 8 mm. bullet killing him instantly. He was a fine animal, well fleshed and with high, widespread, sturdy horns. The hunter quickly cleaned the animal, after jerking out the long, fine black hairs that grew along the animal's spine. The old hunter was as excited as I at the kill, and when the buck rolled down the slope he jumped about like a boy, shouting *Waidmann's Heil, Waidmann's Heil!* (Hunter's Luck, Hunter's Luck) and, as he pulled the long hair out and cleaned the carcass he continually exclaimed over what a fine buck it was.

The long spinal hairs were over six inches in length. They would be bound into the fine, small brush called *Gam's Bart,* which is proudly worn on the side of the hat of every male Austrian fortunate enough to own one. Similar brushes, called *Hirsh Bart,* are made from the hair of the big red deer, and *Dach's Bart* from that of the badger. The old hunter claimed that the hair from my chamois would make one of the finest of *Gam's Barts.*

The hair pulled and the animal cleaned, the old hunter tied a short length of rope to the buck's horns and, with the other end over his shoulder, started downhill, with the seventy-pound animal sliding along behind. Although dragged all of the way to the bottom of the main valley, this means of transport did no greater harm than the wearing of the hair off one of the buck's shoulders. In this manner do the hunters of the steep Alps bring out chamois.

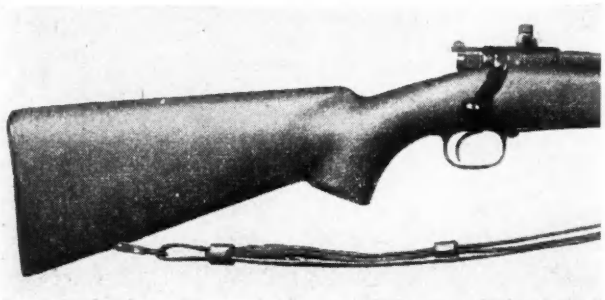
As we reached the treeline on the way down, the old hunter stopped, plucked a twig from a fir tree, dipped it in chamois blood and placed it on his hat. With the hat in his hand, he solemnly proffered the twig to me with a ceremonious *Waidmann's Heil.* Just as solemnly I accepted it and, after sticking it in the side of my cap, shook hands with him to complete another of the little traditions of the hunt in Central Europe.



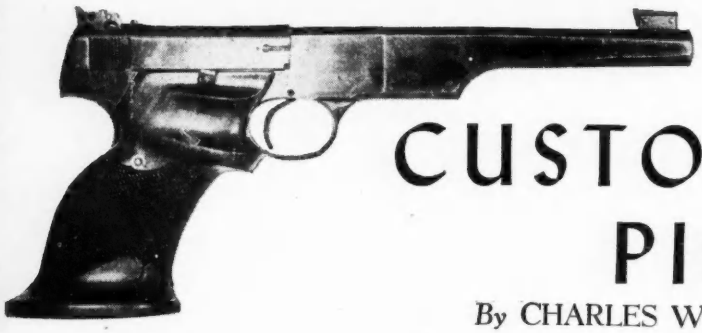
Back at the Hotel Post, after getting out of heavy boots and washing up, we toasted my luck with cognac and some liqueur. I could now drink with the right hand, as was the privilege of a successful hunter on the day of his success. At all other times one must toast the hunt with the left hand. As we drained the glasses, one old hunter said, "This is the first good liqueur we've had in five years. During those years this region was the private hunting preserve of Hermann Goering and only Nazis were permitted to hunt. It is good to see the end of that." ◆ ◆ ◆

# PIGSKIN STOCK FINISH

When you shoot that wild boar, don't bother about trying out his fat for stock oil. Just save the hide and cover your gun stock with it. A marvelously smooth and even job is possible with glue and pigskin, judging from one I saw. It was so tight and jointless it might have been pulled over the stock like a rubber stocking. Evidently it was shrunk on while being glued. It made an unusual finish, all right.



Even the fore-end tip and pistol grip were completely covered, without auxiliary caps or trimmings. There was only the butt plate to hide any joints at that end, and, of course, the action and the barrel in the inletting on top. I cannot guess how it was done so neatly. If the maker recognizes his handiwork, I wish he would come forth and tell us how he did it. You might call it a permanent skintight leather casing, instead of a finish. If so, there is at least one rifle that is used, fired, and cleaned without ever taking it out of its gun case—F. C. Ness. ◆ ◆ ◆



# CUSTOM PISTOL GRIPS

By CHARLES W. ROSSI

THOSE PISTOL SHOOTERS who have never used custom-built pistol grips, after viewing these, may no doubt say, "There's another pistol screwball trying to improve his shooting." Right you are. If one is a beginner, there are many more important fundamentals of pistol shooting to worry about. But after a marksman has reached his peak and can't seem to get that extra point or two required to win the match, I'd say, "Get busy and make yourself a set of grips, or have someone who is handy at wood carving construct a pair of special grips to fit your hand."

I'm speaking from a double-tested experience. About a year and a half ago I was invited by Congressman Richard M. Kleberg to hunt deer and wild turkey on the famous King Ranch, of which he is part owner. While on this hunting trip one of the ranch managers admired my .22 Match Target Woodsman custom-made grip so much that I took it off and attached it to his gun. After replacing mine with a factory grip my scores dropped immediately; I was never able to shoot more than 293 out of a possible 300 over the Camp Perry Course. This convinced me more than ever that I should have another pair of grips fitted to my hand.

With this in mind, but well realizing that I am no professional wood carver, I proceeded to make the grip myself—to be certain that it would fit my hand in every detail. I spent one week toiling with a pocketknife, a wood rasp, sandpaper, and a checkering tool before completing the properly shaped grip pictured here.

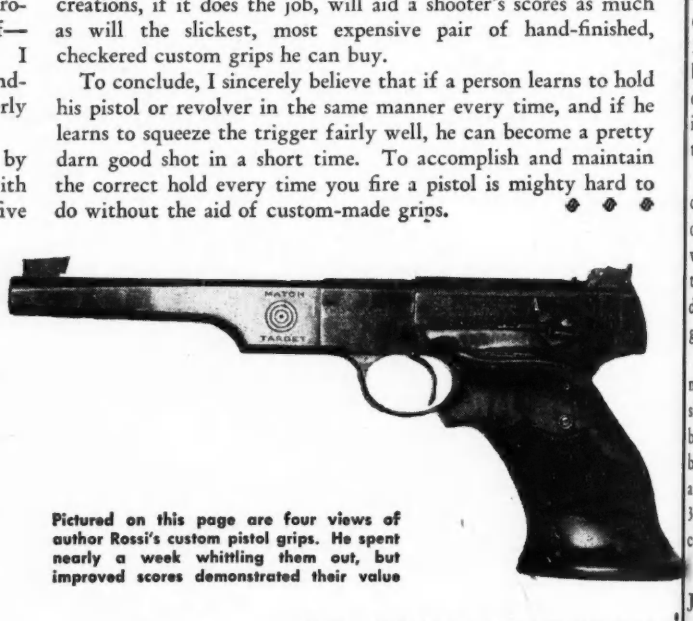
The results of this self-made masterpiece are indicated by the following: The first time I fired the pistol equipped with the new grip I scored forty consecutive tens at twenty-five yards slow fire on the twenty-five yard rapid-fire standard target. The first time I fired the Camp Perry Course I scored 100 slow fire, 100 timed fire, and 98 rapid fire, for a 298 x 300.

Participating in a club match at the Corpus Christi Police Indoor Range some time later, I shot a possible 300 x 300 over the Camp Perry Course. After shooting this possible, someone suggested that I try for the number of consecutive tens. To my surprise I piled up seventy-one straight. There is not the least doubt in my mind that 50 per cent of this can be attributed to using the right kind of grips. This does not indicate that I can always shoot such scores. But I do say this: I have a two or three point higher average than when I used the standard type of grips.

While conducting the NRA Small Arms School sponsored by the Corpus Christi Pistol and Rifle Club, I observed time and time again that the chief mistake made by students was holding the pistol differently each time they stepped to the firing line. The reason for this variation, I firmly believe, is that standard grips do not fit every hand; I should say the hands of approximately 75 per cent of pistol shooters.

Incidentally, a slick, checkered grip, with the last word in finish and fine workmanship, is nice, but it isn't vital as far as scores are concerned. The important thing is to shape up a grip that *fits*—regardless of looks. Appearance is that extra something that a shooter may want but he doesn't have to have to add those points to his average. More than one hot-shot pistol shooter has turned up at Camp Perry with a gosh-awful-looking grip, weighted and taped and patched until it was a perfect fit for his hand, and with pieces of ordinary sandpaper glued on, to take the place of a nonskid checkering job. Sometimes a "custom" stock is nothing more than a big gob of Plastic Wood, squeezed while soft to the exact contours of the shooter's hand. One of these ugly creations, if it does the job, will aid a shooter's scores as much as will the slickest, most expensive pair of hand-finished, checkered custom grips he can buy.

To conclude, I sincerely believe that if a person learns to hold his pistol or revolver in the same manner every time, and if he learns to squeeze the trigger fairly well, he can become a pretty darn good shot in a short time. To accomplish and maintain the correct hold every time you fire a pistol is mighty hard to do without the aid of custom-made grips. ◆ ◆ ◆




**Pictured on this page are four views of author Rossi's custom pistol grips. He spent nearly a week whittling them out, but improved scores demonstrated their value**

**THE OLD SAYING THAT 'FIGURES DON'T LIE' HAS THE USUAL EXCEPTION WHICH PROVES THE RULE . . . BALLISTIC TABLES CAN BE MATHEMATICALLY CORRECT, BUT HOPELESSLY IN ERROR IN THE FIELDS**

# *A Hunter Looks at* KILLING POWER

**Illustrated by Jim Berryman**

*By* EDMUND WATERS

AS FAR AS PRACTICAL RESULTS are concerned, ballistic tables are only an indication of what a given rifle and load will do under actual field conditions. They are not infallible guides. Sometime ago I read an interesting article on the efficiency of different calibers. The author pointed out that the .348 Winchester in the 150 grain loading has the same killing power at 300 yards as the .250-3000 with its 100 grain bullet. The ballistic table would bear him out in this, but actual field experience will invariably show how erroneous that conclusion is. The 150 grain .348 bullet is much the better killer, despite the ballistic tables.

Even before the 150 grain .348 starts to expand, it has a diameter which the 100 grain .250-3000 loading will reach only upon expanding. In addition, the 150 grain bullet has the weight necessary to give a deep wound. With the expansion that takes place upon impact, giving the 150 grain bullet a diameter of about .50 to .60 caliber, it is far superior to the 100 grain .250-3000.

It is rather interesting to note that after a bullet leaves the muzzle of a rifle, regardless of the velocity, it passes progressively through the different speeds at which bullets were driven by rifles now considered obsolete. The .30-'06, 180 grain bullet at 200 yards becomes, in effect, the same as the .30-30 at the muzzle. If the .30-'06 is capable of clean killing at 300 yards, as many riflemen believe, then the .30-30 must be considered clean killing at least up to 100 yards.

The .257 Roberts, 117 grain bullet at 100 yards has a velocity 2,397 foot seconds. At the muzzle, the old .25-35 has a velocity of 2,375 in the older Remington-Peter's loading. There is just 100 yards difference in killing power in these two bullets; no amount of figuring can make it otherwise.

A list of this kind could be made almost endless. The point to remember is that game is killed with the energy the bullet has when it arrives at the target. When many hot loads arrive at a distant target they have cooled off and are only very light bullets driven at modest velocities.

There are trends in bullet designing, loadings, and velocity demands, as in anything else. Just now, the ultrahigh-velocity cartridges have the spotlight. There is a tendency to dismiss the importance of bullet weight in game loadings, especially on lighter game such as deer. But the most casual examination of a game animal of this class will show, I believe, that this is fallacious.

With the ultralight, high-velocity bullets, the rifleman limits the area he must hit for a sure kill to the comparatively small twelve-inch target behind the shoulder. He is getting no more sure killing power than the older obsolete rifles, such as the .32-40, or .38-55, had under the same circumstances. Either type of rifle, the old black-powder burners or the ultrahigh-speed, light bullet slingers, will kill when the bullet is placed behind the shoulder or through the head or neck.

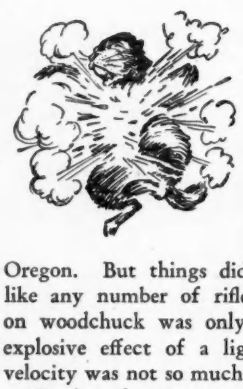
A case in point is the .220 Swift. Few hunters who have

seen this caliber perform on deer would care to recommend it as a big-game rifle. At ranges over 200 yards the bullet loses its explosive effect. It is just a light bullet driven at modest velocity. At shorter ranges, where most deer are killed, it is very erratic in performance.

Those dead shots, dropping game in their tracks with a light bullet such as the .220, only prove that any bullet, under certain conditions, is more lethal than is usually supposed. The lowly .22 Short might conceivably kill a deer at 300 yards—under certain conditions.

An Indian friend of mine, living on the Klamath Reservation in Oregon, used a .220 on deer one season. He had been using a .303 Savage for mule deer, firing an average of about four shots a year to get his winter's meat. I suppose he would have stayed with the Savage until summoned to the happy hunting ground, but he got a snootful of firewater one night, and fell in with some other noble redskins in a hoss-and-gun trading mood. My friend came out of the ruckus with a black eye, a wall-eyed pony not less than eighteen years old, and a .220 Swift. When he became sober enough to take stock of his new acquisitions, he bemoaned mightily the loss of his .303 Savage. Then it occurred to him to try a few rounds with his new rifle, just to see how bad he had been taken.

In the lava rocks around Klamath there are some large, fat woodchucks. My friend Indianed up on a nice fat unsuspecting chuck sunning itself on a rock, to what he considered reasonable range, then taking rest cut down on it. At the short range of eighty-five or ninety yards, he literally made hash of that chuck. He tried another at about 125 yards. Same results. He extended the range until he was picking them off at 200 yards.



He was so pleased with the combination that he stopped plotting against his fellow tribesman who had traded him out of the .303. He remained sober the rest of the summer to make sure that he would get into no more gun trading before the autumn mule deer season. When that day arrived, it found him camped with his wife in the best mule deer territory of Southern Oregon. But things didn't work out too well. He found, like any number of riflemen, that what was dead medicine on woodchuck was only a wounder on larger game. That explosive effect of a light bullet driven at extremely high velocity was not so much in evidence on deer.

His first shot was at a deer standing in a light screening of brush at about eighty yards range. At the crack of the rifle the deer flinched, then left the country. Examination of the tracks showed no sign of a wound, though he had held for a shoulder shot. There was no blood on the trail. After following the sign for the better part of a half mile, the hunter gave up.

The next deer was in an opening about 125 yards away. It was struck just back of the left shoulder, the bullet ranging forward and coming out through the right shoulder. Odd as it may seem, the bullet did not blow up completely in the chest cavity. The off shoulder was broken and there was an exit wound about two inches in diameter, as if it the tissues as well as the bullet, had been driven through.

Both shoulders were so bloodshot that a lot of good prime

**Studying the ballistic tables is no guarantee of dead game in the field.**

venison was lost, a thing which would break the heart of an hunter. A fourth deer, caught in sheltering brush much a the first had been, was lost. Then he clipped a three pointe behind the ear at 100 yards, almost taking its head off.

After the hunting season I met my friend on the Rogu River, getting his winter's supply of salmon. He had trade his .220 for a .348. As he explained it, he wanted a rifle whic would make one big hole, and cut lots of brush. Not a ba feature in any rifle and load for big-game hunting. To cu brush and drive through to a clean kill means more bulle weight at any velocity. This added weight not only insure less deflection, but also increases the size of the area which th rifleman must hit to insure a clean kill. On deer the vita area which must be struck with such rifles as the moderately powered, more or less obsolete .30-30, and the light, high-speed bullets such as the .250-3000, is about twelve inches Such bullets, placed in this area, will almost always drop a dee within a short distance of where it was shot. But when gam is going straight away from the hunter, this vital area cannot be reached.

With the .30-'06 class of rifle, using the round-nose, heavy bullets—220 grain .30-'06, 150 grain .270, 180 grain .300 Savage, 200 grain .348 Winchester, and 200 grain .35 Remington—the vital area on deer is increased to about sixteen inches, affording an easier target. This sixteen-inch target can be reached with these loadings regardless of the game's position.

At longer ranges, after these heavier bullets have cooled off, they still retain two of the qualities which insure quick, humane killing—penetration and expansion. They are still good killers, though they do not have the "explosive" effect of light, high-speed bullets.

When a rifleman considers killing power in regard to game the size of deer, much can be learned by studying the older cartridges like the .25-35, 117 grain loading. For many years I have used a .25-35 for deer hunting in heavy cover because it more nearly fitted my need than anything on the market. It was accurate enough to serve for off-season shooting. It would clip the head off a grouse very neatly; with careful shooting it took deer consistently. This latter is not so sur-

prising when one considers that its effective range is just 100 yards less than the .257 Roberts.

I have killed, or observed the killing, of close to 100 head of deer, as well as several black bear, taken with this caliber. The original loading pushed a 117 grain bullet along at slightly less than 2,000 feet a second. The bullet was soft point, with plenty of lead exposed and would blossom out to about .45 caliber at almost any range or on any game. Due to its sectional density, it gave extremely good penetration. The careful shot, who realized the limitation of the rifle and load, had little to complain about. It killed neatly. Later this load was stepped up, and in order to hold it together and still give penetration, the bullet jacket was considerably strengthened. Consequently, it failed to expand at much over 125 yards.

At that time, using the .25-35, I had to be extremely careful of my shots at fifty yards or less. The 117 grain bullet driven at the low velocity of 2,375 feet a second, often failed to penetrate enough to insure a quick humane kill. At ranges over 125 yards, the upset lessened progressively as the range lengthened. The most effective range was between the extremes of fifty and 125 yards. At this distance most of the bullets penetrated the shoulder, leaving a wound channel of about .45 caliber and killing almost instantly except when the game was struck too far back. However, this changed with the introduction of the Core-Lokt and similar bullets. These bullets expanded and held together at all ranges, making this rather obsolete rifle much more effective within all reasonable woods ranges.

Certain desirable qualities in cartridges are often sacrificed for other, more desirable qualities. Extremely high velocity is seldom found with bullet weight adequate for big game. But we sacrifice the desirable qualities of high velocity to obtain weight without too much recoil for comfortable shooting. There is no substitute for plenty of lead in the game field.

Personally, I doubt if there is an adequate big-game bullet for deer in any caliber smaller than .25. If we include elk, I doubt if there is any bullet which will do the job consistently in a rifle caliber smaller than .30. I doubt if there is a deer rifle shooting a bullet of less than 117 grains, regardless of the velocity, which will consistently kill deer cleanly, day in and day out, in brush and open shooting.

On deer which I have examined, the 117 grain bullet in the .257 Roberts has always been the best killer. It can reach the vital target on deer from almost any angle except when the game is going directly away from the hunter. Here it fails, as do both the 87 and 100 grain loadings in the .250-3000.

If the game is elk, I doubt if there is a bullet of less than 180 grains which can be considered a humane killer, with the possible exception of the 150 grain loading in the .270. In the hands of a careful, skilled shot the .270 can be used on elk and possibly on moose. When the bullet can be properly placed behind the shoulder, it will kill neatly. But this is taking for granted that shooting will be done under ideal conditions.

The intangibles of rifle shooting in the game field must be taken into consideration when examining killing power. It is on this score, I think, that the .270 is often rated as an elk and moose rifle. It is a flat-shooting, accurate rifle, affording a sure hit at about 75 yards greater range than the .30-06.

This flat shooting may mean the difference between a hit which kills cleanly and one which only wounds. Thus, if a .270, 130 grain loading is sighted to hit on point of aim at 200 yards, the bullet is only 7.5 inches below point of aim at 300 yards, which would give this caliber and loading an effective field range of 300 yards. Considering the vital area of game the size of deer as sixteen inches for this bullet, the target size would compensate for the drop of the bullet up to the effective limits of its field range.

Compare this with the .30-'06 and the drop at 300 yards when the rifle is sighted in to hit point of aim at 200—eleven inches, enough to make a hit much more uncertain even if the bullet retained enough energy for a sure kill. But as the velocity falls off at the extreme range of 300 yards, it hasn't enough energy left to kill surely or stop game the size of deer unless the hit is in the vital *twelve-inch* area.

It has always seemed to me that killing power added up something like this: Bullet weight plus velocity equals expansion and penetration, which in turn equals killing power. These, wedded to accuracy, are the factors which, nine out of ten times, put meat on the game pole.

Range is important just as velocity is important, but neither is as important as bullet weight and expansion. Without extreme velocity and without extreme range, we still have killing power if the bullet is properly constructed. Grandpappy proved that with his muzzle-loader and his old lever actions by almost depopulating a continent of game. ◆ ◆ ◆

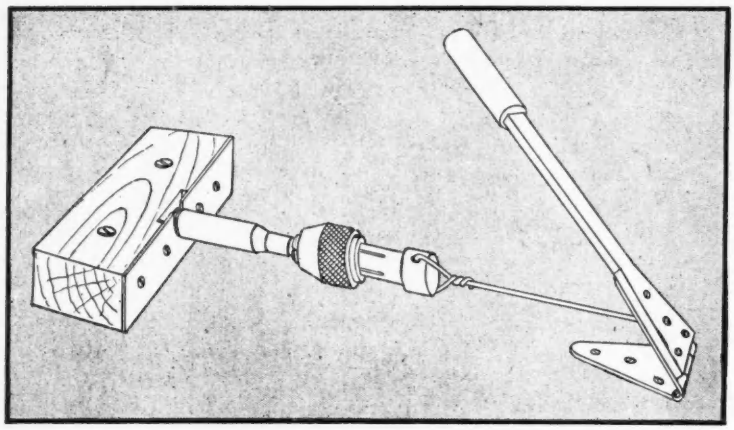
"At the crack of the rifle, the deer flinched, then left the country fast."

# Poor Man's Bullet Puller

NOT LONG AGO I WAS LOOKING over the hardware counter of a mail-order store. I spotted an assortment of T-handle tap wrenches with four-jawed collets. Those four jaws held my eye because I had been trying to make a bullet puller. I wanted something with four jaws to keep from squeezing my bullets out of shape. Those four jaws would distribute the pressure around the bullet and prevent damage. As soon as I spotted those four-jaw tap wrenches, I had an idea that I could lick my problem—and cheaply, too.

I had a service bullet in my pocket, and immediately moved to find a wrench into which that bullet would fit. I had no more than found a wrench of the right size when I found myself a bit of difficulty. If the bullet were inserted backwards, the wrench gripped it nicely. But if inserted point first, the socket wasn't deep enough to take the bullet. Yet the springs of the collet were cut back two inches which was more than enough to take the bullet.

To investigate, I took the wrench apart and discovered a little partition across the cavity of the collet, just far enough inside to act as a stop for the tap for which the wrench was made. If that partition were removed, there would be a cavity two inches long—the whole length of the collet. And my four-jawed bullet puller would be almost complete.



**An inexpensive tap wrench and some odds and ends will make a practical bullet puller**

I bought the wrench, took it home, and set it in the vise. Unfortunately, my machine shop is a poor man's outfit. It consists of a hammer, a brace with some odd bits, a hacksaw, and some odds and ends like that. But I've got a whole set of enthusiasms. I put a five-sixteenth-inch drill into the brace, stuck the drill into the collet of the tap wrench, and turned on the enthusiasm. Around went the brace handle—just once. Then something stuck! So, we back up and try again. And she sticks again. And we try. And kerplink! The drill breaks. So drilling a partition out of a spring collet is one of those things. You have to be a machinist or have strong tools.

Somewhere I had read about a "cannon" drill! Something like a cannon seemed to be just what I needed to bore out that partition. So, I found a piece of drill rod five-sixteenths inch wide and three inches long. I ground off one end of this rod on an angle, so that it was half round for about an inch from the end. Then, I heated it on the kitchen stove and dunked it in warm water, after which I tempered it to a dark straw color. The edges of the half round end were sharpened on an oil stone by rubbing across the flat surface, and the shank was flattened a bit on two sides to give my old carpenter's brace something to hang on to. Remember, I don't have any fancy drill press! Then, all set, I turned on the enthusiasm again. Boy! I chawed that partition out of it in nothing flat, and at the same time gave the inner surfaces of the collet jaws a nice curved shape, just the berries to fit around a .30 caliber bullet.

So, I tested her out. I put in a bullet and tightened up that collet by holding the collar in the vise and twisting. I gave her everything! Then, I took out that bullet and found it was not deformed at all. Miked .308 in all diameters.

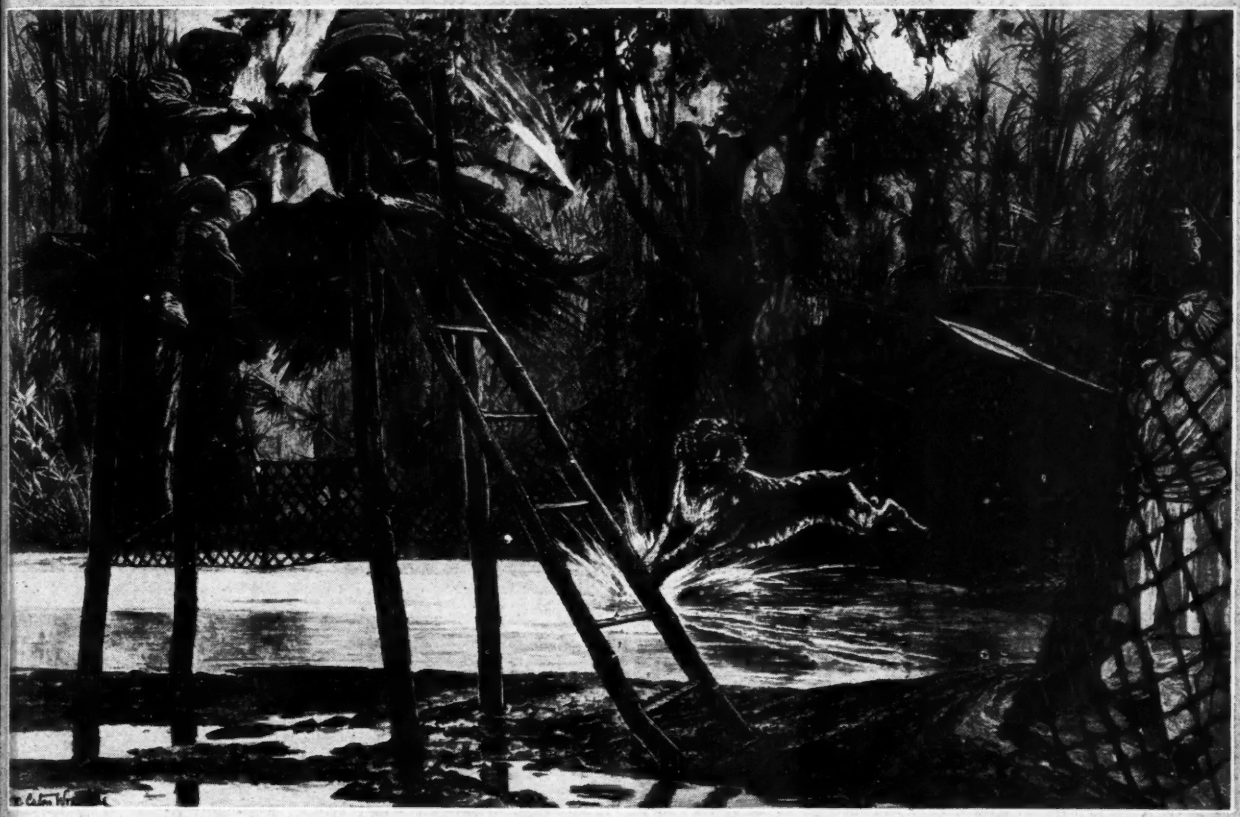
However, I did run into another little difficulty. It seems that a good cheap tap wrench like the one I was using wasn't polished any too much on the friction surfaces, and when the collar was tightened on the collet jaws it gave forth ominous grinding sounds of metal gouging into metal. Maybe the metal was a bit too soft, also. But it was easy to fix. A bit of fine emery paper polished off the roughness on the taper of the collet jaws and on the corresponding taper inside the collar.

I put a piece of thin iron in the vise and worked on it with a rat-tail file until I had a notch the right size to hold the extractor groove of a .30-'06 case. Then, with two screws, I fastened this notched piece of iron to the side of a hunk of two by four. This block was then fastened to my bench. About a foot and a half from the block, I fastened one side of a strap hinge to the bench, and the other side to a two-foot stick which was to be the handle that operated my bullet puller. Between the block and the handle, I mounted the modified tap wrench, merely by fastening the wrench to the handle with a piece of wire long enough to enable me to seat the extraction groove of a cartridge in the block while the bullet of that cartridge was held in the tap wrench.

To pull a bullet all I had to do was to push back on the wooden handle . . . and see the tap wrench slip off the bullet!! Hell's bells! This was no good at all! This little difficulty disappeared as soon as a couple of flat places were filed on the collar of the tap wrench so that another wrench could take hold to tighten the collet on the bullet.

Anyway, my bullet puller cost me a dollar. It really pulls bullets right out of crimped .30-'06 cases. It does the best job on copper-jacketed bullets, but it will lift out a lead bullet all right unless the lead bullet is stuck in there tighter than heck, in which case that lead bullet will look like a hunk of taffy once you get it out. However, nobody would think of using a pulled lead bullet anyway. It's those expensive copper-jacket bullets that we want to save. On these, my bullet puller is just the ticket. It works, and it fits into my "poor man's budget."
—V. E. LEROY.

Bettman Archive



Tiger hunting in Mysore, India

# THE DEVELOPMENT OF THE RIFLE FOR BIG GAME

## PART II 1874-1892 THE MEDIUM BORES

By S. R. TRUESDELL

*IN PART I, hunting experiences with the early large-bore muzzle- and breech-loading rifles were described, and the trend toward lighter weapons of medium bore was indicated. Part II continues the story of big-game rifle development after the advent of the breechloader, when the improvements resulting from its adoption had become fully established. Excessive powder fouling, which had been an almost insuperable handicap for the smaller bores in a muzzle-loader, was now less objectionable. The bullet for the breech-loading rifle could be of full groove diameter and assist in clearing the barrel. The tighter fit of the bullet prevented the escape of gas and greater velocities were possible, even with less powder. The long, hardened bullet secured greater penetration and fewer shots were needed, if well placed, to kill the largest game.*

St. George Littledale and Sir Edmund Loder were a different type of hunter from those described in the first article. They would be classed as gentlemen-sportsmen, hunting for pleasure and for the trophies they could secure. Men of this type with sufficient money and time generally hunted horned game and the Carnivora for their skins. So we find that neither Littledale nor Loder ever shot elephant or rhino. Loder did equip himself with a double 8 and a double 12 bore rifle battery made by Reilly of Edinburgh for hunting elephant and rhino in Sumatra, but never used it. Both he and Littledale, however, hunted together in India for tiger, bison, sambur, and thar.

Littledale had already hunted sheep and elk in western North America (1874-1875) and was after markhor and ibex, the first a spiral-horned and the second a scimitar-horned goat of the Himalayas. Later he hunted much in Central Asia (1875-1885) and was one of the first to bring out heads of the Ovis poli, described by Marco Polo as the "father of all sheep." He hunted with a double .500 bore Henry rifle but had little to say of its performance. The Henry rifle was also an Edinburgh product. Henry's type of rifling with wide grooves and narrow lands was used also in the .450 Martini-Henry rifle adopted by the British Army in 1871.

Sir Edmund Loder hunted buffalo and elk in Colorado in 1875

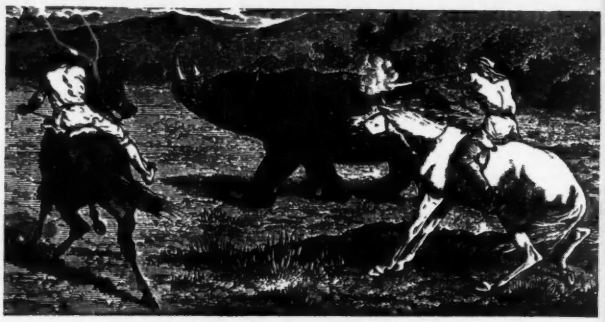
with a double .450 Westley Richards. He hunted buffalo from horseback with a .45 Colt revolver he had purchased for thirty-five dollars in New York, not having been able to secure ammunition for his English revolver. Between his round-the-world trip and a second trip to the United States in 1887, Loder made many trips to Spain and North Africa after chamois, ibex, and the wild sheep of the Atlas, the spiral-horned Barbary sheep or moufflon. Here he met A. E. Pease and C. E. Radcliffe, both gentlemen-sportsmen of his type. All of these hunters became converts to the .256 Mannlicher through the persuasion of St. George Littledale, after the latter's experience with a cut-down Roumanian Mannlicher in Central Asia in 1893.

The ballistics of the double .450 and .500 Express rifles used by Littledale and Loder are shown with the .400 and .577:

| *Caliber* | *Bullet* | *Powder* | *Muzzle Velocity* | *Energy* | *Recoil* |
|---|---|---|---|---|---|
| .577 | 591 grs. | 164 grs. | 1,663 f.s. | 3,625 f.p. | 60 f.p. |
| .500 | 444 grs. | 138 grs. | 1,784 f.s. | 3,134 f.p. | 50 f.p. |
| .450 | 322 grs. | 110 grs. | 1,777 f.s. | 2,254 f.p. | 40 f.p. |
| .400 | 209 grs. | 82 grs. | 1,874 f.s. | 1,628 f.p. | 20 f.p. |

A larger number of Americans appear in this period, the peak of hunting in the Great West. One of the most noted was Col. W. D. Pickett, a Confederate veteran, who had this to say about his single-shot .45 caliber Sharps in "Hunting at High Altitudes":

> "I was then (1876) using the long-range .45 caliber rifle made by the Sharps Rifle Company, but by putting a double patch around the .44 caliber 275 grain Express bullet it shot as accurately from the .45 caliber rifle as from the .44. A few cartridges were sent to Major Michaelis (Ordnance officer at Springfield Arsenal) with the 275 grain Express ball and an equal number of .45 caliber Express bullets of my own design, weighing 340 grains. Into all shells 110 grains of powder was loaded, and the result as determined by the Government chronograph was that the .45 caliber bullet attained a muzzle velocity of 1,830 feet a second, while the 275 grain bullet had a muzzle velocity of 1,910 feet a second.
>
> My conclusion was that the lighter Express bullet was not the best for game larger than deer. Later experience had convinced me that the 340 grain Express ball is sufficient for all large game of the continent. For great beasts like the buffalo, a heavy solid bullet is the thing, but during the season of 1881, after I had become familiar with the habits of the grizzly bear, I killed, using an Express bullet of 110 grains of black powder, twenty-three of those bears of which seventeen required only a single shot."



Hunting from horseback with both rifles and pistols was popular in North America and Africa with 19th Century sportsmen

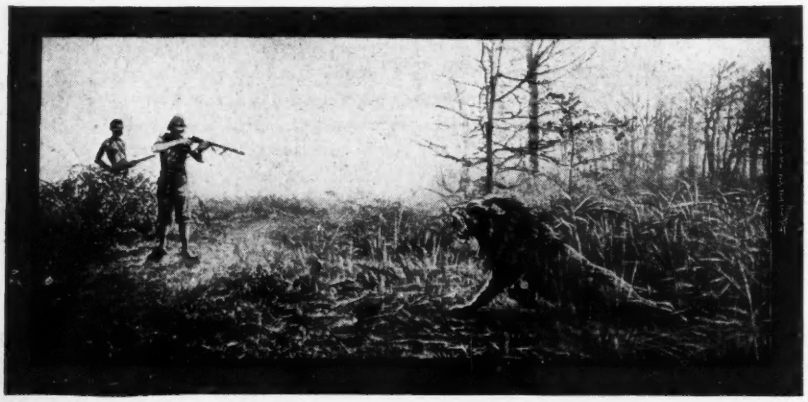
G. O. Shields, Editor of *Recreation* magazine, did considerable hunting in the Rockies of Montana and Wyoming during the 70's and 80's. His first rifle, a .32 Stevens, was soon replaced with the then-new .45-75 Winchester 1876 Model, and then later with a .45-75 single-shot Sharps. He used this successfully on buffalo, elk, and grizzly bear.

Other American hunters were W. H. Wright, grizzly bear hunter, guide and photographer of Missoula, Montana; Theodore Roosevelt, ranchman, of Medora, North Dakota; S. E. White, author, of Grand Rapids, Michigan; John B. Burnham, fish and game conservationist, New York; N. H. Roberts, old-time rifleman and more recently inventor of the .257 Roberts cartridge; Bryan H. Williams, guide and game commissioner, of British Columbia; B. W. Robinson, businessman-hunter of New York; and Caspar Whitney, Editor of *Outing*. At the start of their careers all of these men used typical American medium bores for American game. But, lacking the heritage of the big double rifles of the elephant hunters, these rifles, except for the single shots, were light when compared with the English medium bores:

Wright hunted the grizzly exclusively and started with a .44 which he soon discarded for the heavier rifle, of which he says in his book "The Grizzly Bear":

> "I was then using my single-shot rifle made to order for me by the Winchester people; the .45-100 in which I shot 100 grains of powder and 600 grains of lead. It was one of the guns that killed at both ends, but I liked it better than any I have ever carried. I used it for years, and I discarded it for a lighter .30-30 only when I gave up hunting with a gun and took to hunting with a camera. Personally, I could depend on this rifle for a sure three shots in twelve seconds, by holding two spare cartridges between the fingers of my right hand, and I have always thought that a hunter is apt to be much more careful if he knows that every shot must tell. I always got as close to the game as I could before shooting, and whatever I shot at generally dropped if hit, and I was usually near enough to be sure of hitting."

At one time Wright killed five grizzlies with five straight shots with the Winchester single shot. He had discarded the .44 Winchester because it would jam if he failed to cock the hammer for each shot.

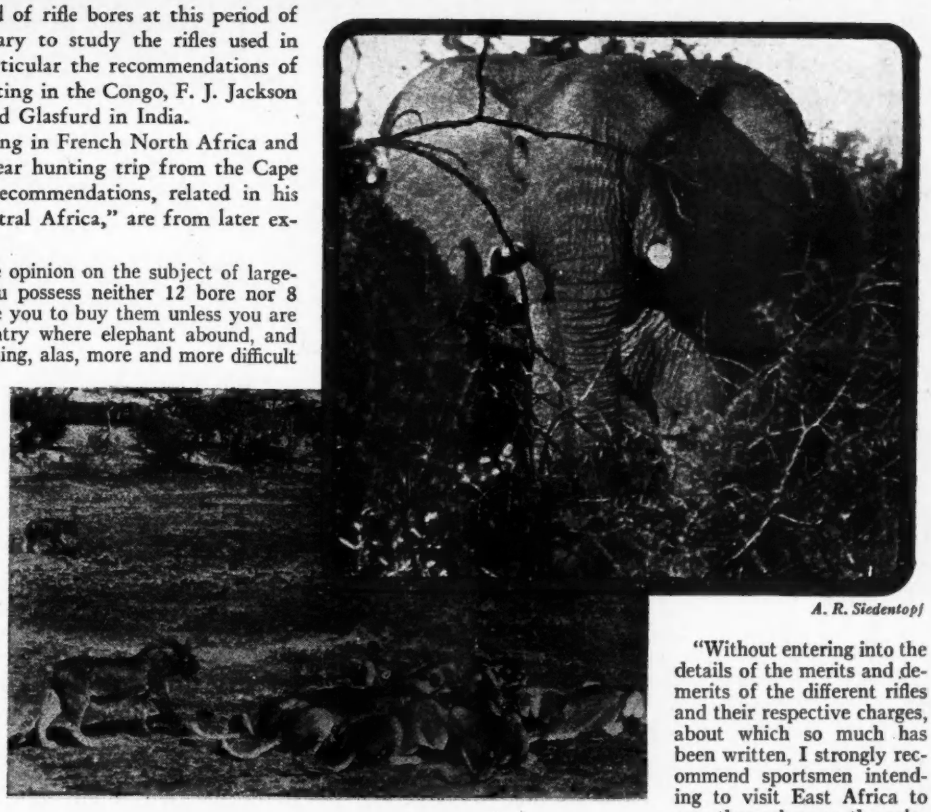


The "coup de grace." Edouard Foa, on his expedition into Africa, finishing off a wounded lion. Foa used the .577 Express, but later changed to an English double barreled .303 rifle.

In order to analyze the trend of rifle bores at this period of big-game hunting, it is necessary to study the rifles used in Africa and India. Note in particular the recommendations of Edouard Foa, a Frenchman hunting in the Congo, F. J. Jackson in East Africa, and Fletcher and Glasfurd in India.

Foa spent twenty years hunting in French North Africa and the Congo, including a three-year hunting trip from the Cape to the Congo. But his rifle recommendations, related in his book, "After Big Game in Central Africa," are from later experience in the Congo:

"I am still of the same opinion on the subject of large-bore weapons, and if you possess neither 12 bore nor 8 bore rifles I do not advise you to buy them unless you are certain of visiting a country where elephant abound, and those countries are becoming, alas, more and more difficult to find. . . . My principal weapons were two Express double-barreled rifles of .577 bore. One of them had been made specially for me by M. Galand, the well-known gunsmith who had already armed me several times and according to my own indication. I had asked for an exceedingly small reduction of the bore at the top part of the barrel; a small increase in the thickness of the barrels, without respect to weight; shortening of the barrels; a large pea sight; a treble lock, top lever, and a solidity equal to the severest test. This rifle, which I call my Express No. 1, is so well made that after three-and-a-half years shooting, tribulations, jolts, and handling, after having fired 600 to 700 shots, it only required cleaning upon my return. . . . Express No. 1 weighs eleven pounds and one ounce. No. 2 . . . was also made in the workshops of M. Galand, and with it I killed more than 300 animals during my hunting expeditions from 1891 to 1893. The barrels are a little longer, the two sights are diamond ones, and its weight is a little less than ten and one-half pounds in all. I took with me on trial, and not without a little mistrust, a double-barreled English rifle of .303 bore—that is, a little smaller than the Lebel. This weapon, which had the appearance of an Express rifle very small for its bore, was one of the first examples of the Metford Express which had appeared on the London market. It was an adaptation of the Lee Metford army weapon, which fires six shots and has a single barrel. To adapt it to sporting purposes, it was supplied with two barrels, but the repeating mechanism was done away with as in ordinary rifles. The first two weapons of the kind had burst in the faces of their owners. The third, that which I took with me, had been strengthened so as to resist the action of English Army smokeless powders, cordite, and rifleite, which put the barrels to severe tests, so that it weighed, notwithstanding its small bore, almost as much as an Express—ten pounds and one ounce. This weapon, which I shall call my .303, has proved that it was admirably built since I have fired with it nearly 1,000 cartridges without the slightest accident."



*A. R. Siedentopf*

F. J. Jackson, one-time Governor of Kenya Colony, East Africa, was in favor of the largest bores for hunters coming to Africa. The following is from the Badminton Library volumes on "Big Game Shooting":

"Without entering into the details of the merits and demerits of the different rifles and their respective charges, about which so much has been written, I strongly recommend sportsmen intending to visit East Africa to arm themselves on the principle that a big beast, and more particularly a dangerous one, requires a heavy bullet and the great shock such a bullet gives to the system to disable it or kill it, and not to allow themselves to be carried away with the idea that a .450 Express bullet is good enough for anything. There is no doubt whatever that the very largest and toughest of game can be killed by a .450 or .500 Express, and there are several well known and very experienced sportsmen who use nothing else. But as it is more than probable that the majority of those men who use, and advocate the use of, small rifles for all kinds of big game used heavy rifles when they first began and while learning by experience what they now know of the habits of the beasts, their anatomy, and their most vital spots, I should recommend beginners to use what these experienced hunters began with, that is, heavy rifles for big game. . . . Approaching a beast which is quite unconscious of the stalker's presence . . . is rarely if ever dangerous; but following the blood spoor of a wounded buffalo, rhinoceros, or elephant into places where there is little chance of seeing the beast excepting at close quarters is quite another thing. . . . A large-bore, spherical bullet driven by plenty of powder, even if it should not strike a vital spot, will inflict such a tremendous shock that the creature is far less likely to charge than when hit with a small bullet. . . .

The following is the battery used by myself and it is one which I have found satisfactory.

A single 4 bore rifle, weighing twenty-one pounds, sighted for fifty, 100, and 150 yards, shooting twelve drams of powder and a spherical bullet.

A double 8 bore rifle, weighing fifteen pounds, sighted for 100 and 200 yards, shooting twelve drams of powder and a spherical bullet.

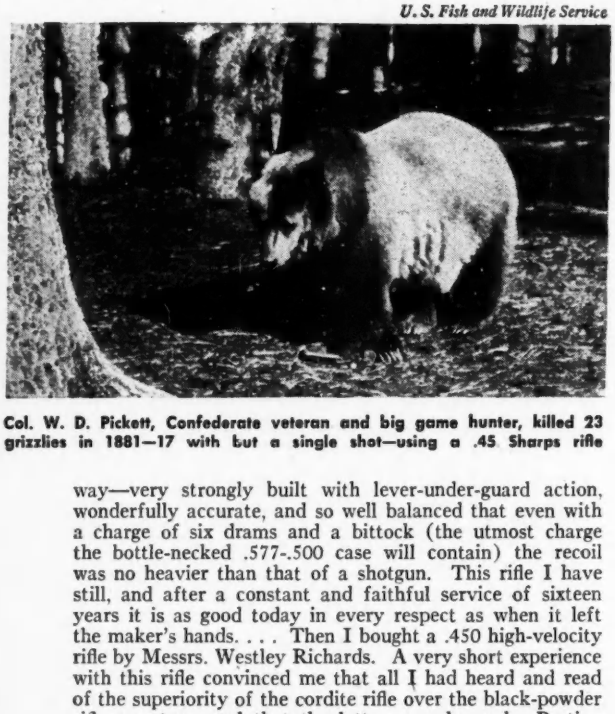
A double .500 Express, sighted for 100 and 200 yards,

bored for the long bottle-shaped cases, 'Magnum,' shooting six drams of powder and long bullets of three kinds, solid, small-hole, and copper tube."

Even in India hunters adopted the medium bores reluctantly. Others, trying the hollow-pointed Express bullets which flattened or flew to pieces on horns or bone, went back to the heavier bores. The most interesting arguments are from F. W. Fletcher, a tea planter in South India, and Major Glasfurd of the Indian Army in North India. Fletcher comments about his choice of rifles in his "Sport in the Nilgiris":

> "For some time I used a .577 but I ultimately discarded it in favor of the Magnum .500. I found that the latter, though taking a lighter bullet, was quite as effective as the heavier rifle for all purposes for which an Express could be legitimately used, and in it the principle of the Express—a large charge of powder behind a light bullet—was more fully developed than in any other rifle of this class. . . . For years I used the 340 grain bullet for deer, and the 440 grain for dangerous animals, but eventually I adopted the latter for universal use as the lighter bullet propelled by the heavy powder charge flew to pieces almost on impact, and occasionally this resulted in unduly low penetration. Both my Expresses were built by Messrs. J. & W. Tolley, and better weapons of their class it would be impossible to find. The double rifle in especial was perfect in every way—very strongly built with lever-under-guard action, wonderfully accurate, and so well balanced that even with a charge of six drams and a bittock (the utmost charge the bottle-necked .577-.500 case will contain) the recoil was no heavier than that of a shotgun. This rifle I have still, and after a constant and faithful service of sixteen years it is as good today in every respect as when it left the maker's hands. . . . Then I bought a .450 high-velocity rifle by Messrs. Westley Richards. A very short experience with this rifle convinced me that all I had heard and read of the superiority of the cordite rifle over the black-powder rifle was true, and that the latter was doomed. Parting with an old and tried friend is always painful, and it was not without regret that I put my Magnum .500 permanently on the shelf; but there was no gainsaying the fact that the .450 cordite was in every way far superior to my old love. The first three shots I fired from the new purchase were at sambur stags, and a single bullet sufficed for each. Soon afterwards I had an opportunity of trying it on bison. The first bull collapsed with a bullet through the neck; but anxious to do justice to my old shooting tools I did not accept this as convincing proof of the cordite rifle's superior powers, for, I said to myself, a solid bullet from the Express and 'a fortiori,' a conical from the 8 bore, would have been just as deadly. But when, a day or two afterwards a second bull hit through the body went down all of a heap, I had to confess that my black-powder rifles must take a back seat.
>
> "Encouraged by my experience with the .450, I invested in a .600 high-velocity rifle by Jeffery. Of the tremendous power of this rifle, it is scarcely possible to convey an adequate conception on paper; but some idea of its capabilities may be gained from the statement that it has a striking energy of 8,700 foot-pounds against about 7,000 in a 4 bore with fourteen drams of black powder. Only a rash man would prophesy in these days of rapid change and incessant invention, but it is difficult to conceive that a more powerful weapon than this can ever be built to be fired from the shoulder. In cold blood the recoil from this rifle is somewhat severe, but in the excitement of shooting it is not noticeable—certainly not deterrent even to a man of ordinary physique. Its smashing power, by which phrase I mean its power of disabling with even a badly placed body shot, is enormous; to hit is to bag. By its introduction, the old heavy 4 and 8 bores have been swept clean out of the field."

*U. S. Fish and Wildlife Service*



**Col. W. D. Pickett, Confederate veteran and big game hunter, killed 23 grizzlies in 1881—17 with but a single shot—using a .45 Sharps rifle**

This .600 rifle fired a 900 grain bullet at 1,950 foot-seconds in a sixteen- to seventeen-pound double rifle, with about 100 foot-pounds of recoil. Only two hunters mentioned in this series of articles have used such a gun. The other was a Mr. Carl Sarsen in Portuguese East Africa, whose record was some fifty-two elephants with the weapon. But it must have been murder to shoot five lions with seven shots as he is reported to have done.

Major A. I. R. Glasfurd has some excellent comment on the medium bores in his book, "Rifle and Romance in the Indian Jungle," although his experience comes rather late in the history of medium-bore ascendancy:

> "That the new weapons, when properly constructed, can be perfectly satisfactory under Indian conditions is proved by the fact that the writer, in practice and in shikar, has fired over 600 rounds from his (.400-55-400 hammerless top snap action) under all climatic conditions of the plains of India, using it with perfect results against almost every kind of game there is to be found. The breech, action, and barrels are as true and tight as when received from the makers, and the weapon except for slight wear to the browning is not to be known from a new weapon. . . . No satisfactory truly all-round rifle yet exists; after that a choice of weapons rests largely with the sportsman himself. . . . If he can handle it, the bigger the bore the better for close jungle work. For ponderous game, the medium-bore cordite comes in first favorite. For dangerous soft-skinned game, at close ranges, the rifled ball-and-shotgun, not smaller than 12 bore if used with a really suitable bullet. For long sporting ranges, shooting at harmless game, on hill or plain, the .303 as giving rather better killing power than the smaller bores. In these three we have succeeded in reducing to the minimum a long list of weapons."

The twenty-nine hunters considered in this study as representing the period of medium-bore rifles from 1876 to 1892 carried in their careers a total of ninety-seven rifles from 4 bore to .256 (this after its advent in 1893). Sixteen of these were large, from 4 to 12 bore, fifty-two were medium bores, .600 down to .38 caliber, and twenty-nine were small bores, under .375. These of course, were used after 1892. *To be continued.*

*In the two concluding articles of this series Mr. Truesdell will discuss the high power bolt-action smallbore rifles we use today. Many American hunters familiar to* RIFLEMAN *readers, Whelen, Sheldon, Roberts, and others, are mentioned, and the reasons given for their preferences among the modern hunting rifles.* ◆ ◆ ◆

# Alcoholic Gunsmithing

By ALBION K. LIVINGSTON

IF I WERE NOMINATING the number one tool for the amateur gunsmith, I would put my chips on a pint of good denatured alcohol and one of those double-barreled alcohol blow torches to go with it. No gunsmith can afford to ignore the service to be obtained from this handy little gadget. It is a lifesaver for the fellow who is continually battering screw heads with an off-size screw driver and banging up soft metal sights with a hard steel hammer.

If any of you fall into the category of the above mentioned woe-betide-me-I-wish-I-had-not-done-it group, he may cheer up. There is still hope! Any small, untempered parts, such as screws, sights, barrel-bands, pins, butt plates, and sling swivels can be reblued beautifully and harmlessly in a few moments with an alcohol torch and you will find the bluing to be of a very permanent nature. But do it only if that part is of soft steel and does *not* depend upon tempering for proper functioning.

In addition to the torch you will need the following accessories: A medium fine three-cornered file; a couple of sheets of No. 400 grit emery paper; a small oil can filled with No. 10 motor oil; a handful of steel wool—fine; a piece of fine wire one-foot long, or a small pin vise to hold objects while they are being heated.

Now, suppose you have the outfit recommended and you are about to reblue a couple of screws that are slightly marred. First, remove the screw. Then, take a file and lightly work down any ragged edges until they are flush with the surface of the screw head. Be very careful not to alter the depth or squareness of the slot. If the slot is too badly out of shape, you may need a knife-edge file to true this up by widening the slot slightly. Be sure to keep the edges square so that a screw driver will bite properly. You may use your fingers or a vise to hold the screw while doing this shaping. However, if a vise is used, wrap the shank of the screw in some cardboard or a strip of sheet lead so the threads will not be marred.

After you have shaped the screw head, it may be polished to a bright finish with the 400 emery paper. Remember the higher the polish, the finer your results will be.

You are now ready for the bluing job. First, light the torch and while it is warming up, wrap one end of the wire around the threads of the screw to hold it during the heating process. Now squirt a drop or so of oil on the screw head and hold it in the flame of the torch. Very shortly, depending on the size of the object to be heated, the oil will begin to burn. As soon as the screw is hot enough to cause combustion of the oil, remove the torch and allow the oil to burn of its own accord. After the flame has gone out, apply a little more oil and tickle the screw again with the torch until it flames once more. Do this a couple or three times until the desired depth of blue is obtained. It is not necessary to heat the object red hot at any time. Apply only enough heat to cause combustion of the oil so that it will burn off rapidly. After the screw has reached the desired depth of blue, douse it in some cold water; then wipe it dry and apply a little oil. It is now ready to be put back in place.

For the common variety of rear sight, remove the sight from the barrel by tapping it on the left side so that it will come out of the slot on the *right-hand* side of the barrel. For the tapping operation, use a copper hammer, or a steel hammer and a copper drift pin, to prevent further marring of the surface. Go over any ragged edges with the file, and polish with the emery paper, then proceed to reblue as described above. It is not necessary to remove all the old bluing. You will find that the polished spot when blued will blend in perfectly with any factory bluing remaining on the sight. Warning! When reinserting the sight, be sure to tap it in from the *right-hand* side of the barrel and don't forget the copper hammer! Another caution: Front sights can be reblued beautifully, but plastic beads will burn and metal ones will fall out. Be sure to remove the bead before attempting this or you'll be talking to yourself for a week.

Micrometer sights may also be refinished and made to look factory new by the heat and oil process. The sight must be removed from the rifle and taken apart entirely. Be sure to set aside any tempered springs, as these would lose their temper if heated. After completely dismantling the sight, take each part to be blued and polish out all scratches and dents with the emery paper. Bad dents and rough edges may be removed with the file, but be careful. And, above all, do not take any metal from the sides of the sight where they fit into the elevation or windage grooves. New sights are hard to get!

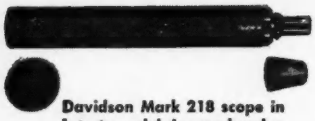
After all the nontempered parts have been polished, proceed to reblue with the torch and oil. Be sure to keep the flame moving slowly over every section of the part so it will be heated evenly throughout. Otherwise the bluing may streak slightly.

Another kink. When you are through, you will notice that those pretty little white lines marking your windage and elevation have disappeared. To remedy this, go down to your local garageman and get an ounce or so of white automobile enamel, the quick-drying kind, and a small ten-cent paintbrush of the water color variety. Clean the surface of the sights free of oil by washing in soap and water, and then dry thoroughly. Now, take your brush and flow the enamel onto the part containing the minute-of-angle notches, then allow the enamel to dry—twenty-four hours, if you can wait that long. When the enamel is dry, take a wisp of your fine steel wool and with quick, light strokes work off the excess enamel on the surface of the sight until only the hairline of white remains in the windage and elevation grooves. This will give you a completely refinished sight that will look factory new.

Remember—the alcohol, heat, and oil process may be used on all small untempered parts, but should *never be* used on the receiver or barrel of the rifle. You will find this method of rebluing to be far superior to the ordinary touch-up types of bluing sold on the market. It is as permanent as any bluing can be and will match perfectly the original job produced by the factory. ♦ ♦ ♦

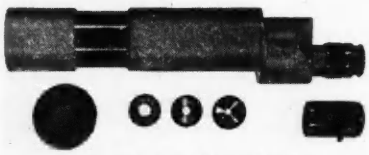
# "ON THE

## A DOPE BAG REVIEW



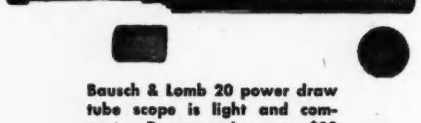
Davidson Mark 218 scope in latest model is good value at present price of $22.50

Super Grade Argus sells for $74.50. Weight is less than 2 pounds; length 14½ inches

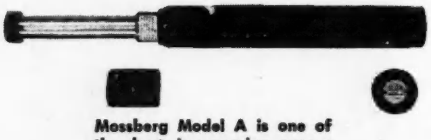


Prewar price of Bausch & Lomb 50 mm., with the 19.5 power eyepiece, was $55

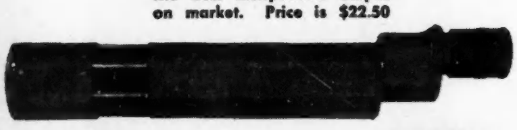
Unertl right angle spotting scope weighs nearly 2½ pounds. The present list price is $90



Bausch & Lomb 20 power draw tube scope is light and compact. Prewar price was $30



Mossberg Model A is one of the best inexpensive scopes on market. Price is $22.50



Bausch & Lomb 65 mm. scope, now discontinued, retailed prior to the war for $78

IT IS A WELL-KNOWN FACT that the low-priced automobile will take one where he wants to go at a reasonable speed, and with a high degree of dependability. In spite of this knowledge, many people buy much more expensive automobiles. Why? Because of the added comfort, the feel of greater power, or the beauty of a certain model. All these are reasonable wants. It is quite foolish for anyone, other than a salesman, to tell anyone that he should buy a certain automobile, and not buy some other model.

The same thing applies to spotting scopes. It's nice to know, however, which scopes will "get one where he wants to go" dependably. In order to determine this, the NRA procured "over-the-counter" samples of well-known scopes, and conducted some tests. Naturally, we considered as the criterion of performance, their ability to spot bullet holes in the target black, under normal conditions. The white was considered too. To the hot shots, of course, this should be of academic interest only.

In addition to actually spotting shot holes on a target, tests were made for the resolving power of the various scopes. As is generally known, the resolving power of an optical system is its ability to distinguish between two adjacent points. The resolving power is usually expressed in terms of the minimum angle between two points that can be separated, or "resolved." No optical system will show a "true" image of a sharply defined object. This is because of something called diffraction phenomena. Because of this, the image will actually be made up of a concentric pattern of light and dark rings. Though the eye never sees this effect, the image is, nonetheless, blurred in accordance with the diffraction pattern. If the diffraction patterns of two objects overlap too much, it will be impossible to distinguish the points separately.

Now for some concrete observations:

Judging from the tests and observations, the Mossberg Model A or latest design of the Davidson Mark 218 scope offers the most for the money.

The latest design of the Mark 218, which was received from the Davidson Manufacturing Company, will not spot as late in the evening as the Mossberg. This is undoubtedly because the scope checked out at 22.5 power instead of 20. That extra power means the loss of some light, and the field of view is smaller. The Mark 218 is not a drawtube—it is focused merely by rotating the eyepiece. This may work out as an advantage, which it shares with the higher-priced prismatic scopes. Occasionally one may want to adjust his scope from the prone position with one hand. Attempting to do this with some of the drawtubes is about as handy as it would be to keep a chicken's feet on the ground while trying to wring its neck with one hand while in the prone position.

After testing one of the early Mark 218 scopes, the NRA Technical Service invited the attention of the Davidson Manufacturing Company to certain details in which their new scope failed to meet NRA standards of spotting scope performance. The result was a complete recomputation by an expert from one of the large observatories. Two samples of their latest production have excellent optics.

These scopes were tested on the range on three different occasions. As the sun fell below the horizon, out of a clear sky it became difficult to see .22 caliber bullet holes in the black at 100 yards with the Mark 218. With the Mossberg, spotting was still very easy. That extra 2½ power of the Davidson 218 was, at least to a great degree, responsible for this. The greater the magnification, the less the light-gathering power. On the other hand, the Mark 218 with the extra 2½ power provided better

# SPOT"

## SELECTING A SPOTTING SCOPE IS A LITTLE LIKE PICKING OUT A NEW CAR . . . YOU CAN BASE A CHOICE ON DOLLAR VALUE OR, IF YOU LIKE, YOU CAN GO IN FOR STYLE AND TOP PERFORMANCE

resolving power in bright light (sun from behind) than any of the 20-power scopes tested.

One can't have everything including low cost, however. The extra power gives the Mark 218 a somewhat reduced field of view at 100 yards. One of the disadvantages of all the lower-priced scopes is the relatively small field of view. Some shooters like to be able to observe trees, grass, flags, et cetera, while they are spotting. In this case, a larger objective is called for.

The Bausch and Lomb drawtube scope with coated lenses had a definite edge over the Mossberg and Mark 218 after sundown. This scope also has a greater field of view. So if the shooter wants to go one step further in cost, the Bausch and Lomb drawtube is a good compromise and is all that should ever be needed for spotting at ranges out to and including 100 yards.

In the evening, as darkness was approaching, the telescopes with the large objective lenses were outstanding from the standpoint of resolving power. The reason for this is that the amount of light passing through a circular aperture is proportional to the square of the diameter of the opening or entrance pupil. In the telescope, the entrance pupil is the unobstructed objective lens, just as the opening in the iris of the eye is the entrance pupil for the eye. Assume that one has a telescope with a 50 mm. objective and the entrance pupil of the eye is 5 mm. for the light conditions existing at the time. The objective lens therefore gathers $\left(\frac{50}{5}\right)^2$ or, simply stated, 100 times as much light as the unaided eye. If the scope is 20 power, the area covered by the retinal image is $20^2$, or 400 times as great as that formed by the unaided eye. The illumination on the retina, when using the instrument, is therefore $^{100}/_{400}$ or 25 per cent of that obtained by the unaided eye. These calculations, of course, neglect the reflection and absorption losses present in the lenses themselves, and these losses will reduce the illumination still more.

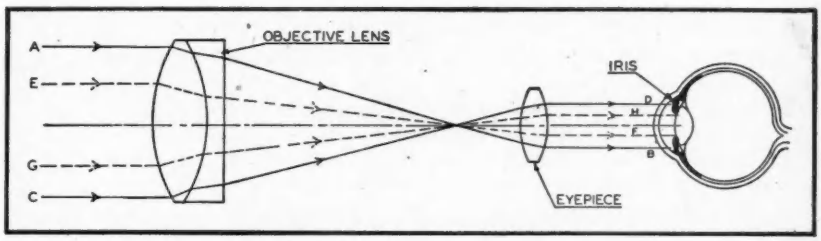
There is a limit to this business of increasing the illumination by going to larger objectives for telescopes of given power. In order to understand this, consider the exit pupil of the telescope, which is the image of the objective as seen by the eye. Hold the scope away from you at arm's length. The spot of light seen in the eyepiece is the exit pupil of the scope. As illustrated in the drawing on page 27, the size of the exit pupil (telescope power remaining constant) is proportional to the size of the objective. If the exit pupil of the scope is larger than the entrance pupil of the eye, the full light gathering power of the objective is not being used.

As can easily be observed, an unconditioned or "unconscious" reflex causes the iris of the eye to expand or contract to produce an entrance pupil which will then be adapted to the light conditions of the moment. To accommodate for intense illumination, the diameter of the average pupil is approximately 2.5 mm. For every faint illumination the diameter increases to 6.5 mm. or more.

Now, the "exit pupil diameter" column in the tabulation on page 28, shows why the large objective telescopes are outstanding when light is poor. The Unertl right angle, for example, has an exit pupil diameter of 3.3 mm. If the light is intense, the entrance pupil of the eye will be only 2.5 mm. on the average, and consequently, $\frac{3.3^2 - 2.5^2}{3.3^2}$, or approximately 43 per cent of the light gathered by the lens is wasted. Since the exit pupil diameter of the lower-priced telescopes is less than the entrance pupil of the eye, all of the light which they transmit is falling on the retina. On the other hand, as the light conditions become less bright, the iris is expanding. As it expands, a higher percentage of light from the larger objective is able to enter. There is no compensating factor with the small objective, since the exit pupil is already smaller than the minimum eye entrance pupil.

Of course, the size of the exit pupil does not tell the whole story as far as illumination is concerned. Some scopes with the same size exit pupil and same power as others will transmit more light because of better glass, or coated lenses.

From these resolving power tests, it was evident that all scopes, excluding the first Mark 218, but including the second one, were about equal. Best resolution was obtained with Mark 218 No. 2, but this is explained by the presence of that extra 2½ power. The Unertl was not as good from the resolving power standpoint as it should be for 24 power. The answer to this was that is was nearer 19 power than it was to 24.




**The objective provides an exit pupil indicated by D-B. Because the entrance pupil of the eye is smaller than D-B, the effective diameter is H-F. A smaller objective, E-G, would provide as much light as A-C, unless the scope were used under such conditions that the iris could expand to diameter D-B.**

The Argus scope seemed to have exceptionally high illumination. It is possible that the illumination was too great under very bright light conditions. With the sun high in the sky the Argus did not seem to give as sharp definition on the resolving power tests as the other 20 power scopes. After the sun was low, and for a short time after sundown, the resolving power of the Argus improved and was superior to the other scopes for a period of a few minutes. As the light became progressively worse the Argus fell in line with the Unertl and Bausch and Lomb 65 mm. scope. We were able to spot shots with the Bausch and Lomb 50 mm., using the 19.5 power eyepiece, after it became too dark for the Mark

218 and the drawtubes. This scope, however, would not spot under as dark conditions as the Unertl, Argus, and Bausch and Lomb 65 mm.

These latter scopes were still able to pick shots out of the black at 100 yards after it was so dark that the 100 yard bullseye was hardly perceptible in an iron-sight front aperture. One reason for this, not mentioned previously, is the fact that the resolving power of the eye is best when the opening or entrance pupil is between 3 mm. and 5 mm. As the light becomes less intense, and the iris expands to this diameter, scopes with a larger exit pupil can take advantage of this optimum eye condition, while those with a small exit pupil cannot.

| | Power (specified) | Power (accurate to within ½ of one power) | Field of view (ft. at 100 yds.) | Unobstructed objective (mm.) | Exit pupil dia. (mm.) | Optimum eye relief (in.) | Weight with caps (lbs.) | Tube dia. (in.) | Length with caps (in.) |
|---|---|---|---|---|---|---|---|---|---|
| Unertl 2½ inch (Right Angle) | 24 | 19 | 9.5 | 63.5 | 3.3 | .75 | 2.41 | 2.75 | 15.8 |
| Mossberg (Mod. A) | 20 | 20 | 6.8 | 36.2 | 1.8 | .40 | 1.53 | 1.75 | 13.3 |
| Argus 55 mm. | 20 | 20 | 11.0 | 55 | 2.8 | .65 | 1.81 | 2.50 | 14.5 |
| Davidson Mark 218 | 20 | 22.5 | 5.5 | 37.4 | 1.6 | .30 | .90 | 1.75 | 12.9 |
| B & L 65 mm. | 20 | 20 | 10.4 | 65.5 | 3.2 | .75 | 4.41 | 3.06 | 19.0 |
| B & L Draw Tube | 20 | 20 | 7.4 | 45 | 2.2 | .30 | 1.94 | 2.25 | 12.5 |
| B & L 50 mm. | 19.5 | 19.5 | 11.3 | 50.5 | 2.6 | .60 | 2.41 | 2.60 | 12.8 |
| B & L 50 mm. | 36.5 | – | 4.3 | 50.5 | 1.4 | .30 | 2.34 | 2.60 | 12.8 |
| B & L 50 mm. | 26 | – | 6.1 | 50.5 | 1.9 | .39 | 2.36 | 2.60 | 12.8 |
| B & L 50 mm. | 12.8 | – | 16.4 | 50.5 | 4.1 | .50 | 2.44 | 2.60 | 12.8 |

**Here, in tabular form, are the results of the recent Dope Bag tests of new spotting scopes. All scopes tested are illustrated on page 26.**

When the light is extremely poor, the scopes with large objectives give one an advantage. However, conditions under which the lower-priced scopes with coated lenses will not spot are rarely found in match competition.

At 4 o'clock in the afternoon on a bright day, with the sun from behind, we were able to spot .22 holes at 200 yards in the black with all of the scopes tested. The B & L 55 mm. was used with the 19.5 power eyepiece. At 400 yards it was possible to spot .22 holes in the white with all scopes. A few minutes before sunset, only the scopes with the large objective lenses were capable of longer-range spotting. Incidentally, with these latter scopes, including the B & L drawtube, under good light conditions it was possible to see .30 caliber holes in the black at 400 yards.

For 50- and 100-yard work, 20 to 26 power seems to be the best. It is sufficient for spotting under most conditions and any more power than that merely cuts down field of view and light.

Mechanically, the Unertl right-angle scope is unique in that the axis of the eyepiece is at an angle of 90 degrees with the axis of the objective lens. A right-handed shooter can place the Unertl to his right, with the eyepiece close to his head when he shoots. To spot, he merely pivots his head and the eyepiece is handy. It is not necessary to shift the body. There is another nice feature about the Unertl. While sitting down, legs spread apart, one can place the scope in front of him, and rotate it in the stand until the eyepiece holder is pointing up. Then he can look *down* into the eyepiece and spot. I once used a Unertl scope with the right-angle feature in this position for coaching in two-man team matches. It is very handy in this respect, as the coach can remain "up in the air," where he can observe wind conditions to good advantage. Some minor objections to the right-angle job have been heard: If one wears a hat with a broad brim all the way around, it will bump the eyepiece holder as he moves his head down into shooting position. Others say they can't get used to looking at right angles to the direction in which they want to see. It is also necessary to position the scope carefully. If it is slightly forward or back of the correct position it is very awkward to look into. So is any scope for that matter, but the right-angle feature of the Unertl makes the position a little more critical.

Both the 50 and 65 mm. Bausch and Lomb prismatic scopes have been discontinued. Eventually, these will be replaced by a newly designed prismatic model. At present, no B&L draw tubes are being produced, although some dealers have stocks. Manufacture of these, with coated lenses, will be resumed in about a year.

To sum up our observations, these tests have brought forth some frank opinions of performance. But perhaps more in a scope is wanted than a choice based solely on a criterion of pure spotting ability. Such a consideration as keeping the weight of the equipment to a minimum may be a highly important factor. Perhaps, in addition to wanting a reliable scope, it is to fit into a certain-length shooting kit. Some one may even want to see the twinkle in a woodchuck's eye at 200 yards.

In a series of tests of this sort, it is possible to establish a criterion of optical performance which can serve as a valuable guide in selecting a spotting scope, but individual preference will still be the determining factor. Selection may be based on dollar value, on excellence of performance, regardless of cost, on "aesthetic principles" of appearance, or a combination of all three.

If a scope is wanted for use on big-game hunting trips, or for scenic purposes, that is another consideration. In this case scopes with larger objectives will undoubtedly be best. But it is a fact that the price usually goes up in direct proportion to the diameter of the objective lens. Realizing this last factor, certain data were established relative to the scopes tested and have been tabulated on this page.

Finally, the shooter must appreciate the fact that all scopes of a certain make or model are not exactly the same. An individual scope may perform much better than another of the same model. The amount of variation from standard is, of course, dependent upon the quality control in the manufacture and assembly of the scope. Allowance must be made for the fact that the data given are based on a test of one or two scopes of each model. In addition, judgment is also based on the observation of limited numbers in use.—EDWARDS BROWN, JR.

# CAN YOU FIND IT?

By STANLEY AINSWORTH

As the issues of The Rifleman pile up, you may wish to devise a means of making the multiplicity of subject material contained in them more immediately available. I have worked out an indexing system which functions satisfactorily and which may be of interest to other gun fans. There is nothing original about the main groupings of materials, but a presentation of them, plus some kinks I have stumbled upon, might help those interested in organizing a similar system.

The following represent the principal categories of information: *Accessories; Ammunition (General, Handgun, Rifle, Shotgun); Book Reviews; Gunsmithing; Handguns; Historical Material; Legislation; Machine Guns; Military Articles; Muzzle-Loaders; Range Construction; Reloading; Rifles; Safety; Shooting (Instruction, et cetera); Shotguns; Sights; Targets; Miscellaneous.*

The system must be cumulative—one to which you can add indefinitely without resulting in confusion. Place the above headings on the tabs of A-Z card indexes; use three-by-five file cards for cataloging the articles. In the upper left-hand corner of the three-by-five cards, a digit shows the number of cards with the same title. An abbreviation in the upper right-hand corner indicates the major classification to which the card belongs. *(Acc—Accessories; Amm-H.—Ammunition-Handgun.)* With this abbreviation, refiling the card is relatively simple, even though similar titles appear in different major categories. On the first line, place a class heading, various types of which are given below. Then put the date of the issue, page, title, and/or a brief description of the article on one line. Other articles in this class can be added as they appear in the magazine.

Since the selection of class headings determines the efficiency of the system and because their character changes from one classification to the other, it would be well to discuss several representative examples.

For instance, some headings under *Accessories* are Binoculars, Gun Cabinets, Cleaning Rods, Shooting Glasses, and Spotting Scopes. Under *Handguns, Rifles,* and *Shotguns* list each model of a particular company on an individual card. Besides makes, models, and types (Bull Pups, Single Action, Double Barrel, Revolvers), we find Accuracy, Actions, Barrels, Choice of Handgun (rifle or shotgun), Home-made Arms, Recoil, Stocks, Triggers, and others as they become necessary.

*Ammunition* is best done by caliber—a separate card for each cartridge type. This is a time-consuming but satisfying task, especially when the Dope Bag piles in so much information about so many calibers. In the *General* classification, there are cards headed Ballistics, Bullet Design, Cartridge Cases, Choice of Cartridges, Killing Power, Primers, and the various aspects of ballistics, such as Penetration, Pressures, et cetera. Some of these are duplicated under the three types of ammunition.

The headings under *Gunsmithing* duplicate many of those in the above groups, but the articles indexed here would be only those which deal with construction, repair, remodeling, and refinishing guns.

Important headings under *Military Articles* are: Experiences in World War I (or II), Grenades, Guerrilla Warfare, Home Guards, Military Arms and Weapons, Military Explosives, Sniping, and Training Programs.

*Shooting* covers many things. The card titles include articles on Canting, Cadence, Combat Training, Down- and Uphill Shooting, Equipment, Estimating Distances, Flinching, Indoor Shooting, Lead on Game, Offhand Shooting, Old Coach's Corner, Sighting In, Trick Shooting, and Wind Doping.

In *Book Reviews* only the title, author, source of the review, and price are listed.

The efficiency of any filing system can be judged partially by the size of the *Miscellaneous* section. Under this we find Axes, Camping, Camp Perry Results, Care of Guns, Chronographs, Conservation, Decoys, Dogs, Engraving and Decorating, First Aid, Game Records, Group Measurement, Handicapping Systems, Hunting Articles, Knives, Lost (how to keep from getting!), Optics, Photography, Rust Preventatives and Lubricants, and several others.

I have considered adding a major category on *Hunting Articles* and dividing them geographically—U. S., Mexico, Canada, Alaska, and the various continents. Also, gun departments of outdoor magazines might be included by the simple device of adding the initials of the periodical just in front of the date for each article.

Obviously, this is not an exhaustive treatment of even my own filing system, but it is indicative of some of the important elements. So, if you want to increase your fun with guns, blow a dollar on the materials and a cardboard file box with a lid—then some evening when the mystery novel bores you, dig out The Rifleman and go to work. ◆ ◆ ◆

"Oh Randolph, we see so very little of each other anymore . . . what's come between us?"

# THIS BUSINESS OF ACCURACY

By J. I. DAVIS

ABOUT THREE YEARS AGO a group of Seattle riflemen, none of whom ever visit the butcher shop during "turkey season," became fed up with wild claims for new cartridges and decided to do something about it. They held a meeting and decided to stage an annual shoot which would bring out as many standard calibers and wildcats as possible, and give them every opportunity to display their wares—on a target at 200 yards, measured with a steel tape. They wanted to see some of those "half-inch groups at 250 yards," and "inch-and-a-half groups at 350 yards," they had heard about.

All of the regular rifle matches these days are fired in one or another of the four standard positions, and the limitations on equipment prevent getting the utmost accuracy from the rifle, so the rule book was practically thrown away. The usual safety rules apply, of course. Rim-fire rifles are barred as they would be hopelessly outclassed with the slightest breeze blowing. Due to facilities, each rifle is limited to once over the course, and two men cannot fire the same rifle. Other than the above restrictions, the sky is the limit. Each contestant furnishes his own rest, which may be anything up to a machine rest, with or without the stock attached to the rifle.

The course of fire consists of four five-shot groups at 200 yards, the target being the 100-yard small bore with a white center pasted over the ten-ring for scope use. Scoring is done by placing metal shot hole gauges in the two widest holes, setting divider points into the tiny center holes in the top of the gauges, and then reading the distance between divider points on a steel scale graduated in hundredths of an inch. This gives very accurate measurement. Scoring has been done by the same person for all matches fired to date.

Three classifications of rifle are recognized: "any rifle," and two classes of hunting rifles, weighing not over ten pounds (with scope)—those of .30 caliber or over, and those under .30 caliber. In the "any-rifle" class, two prizes are awarded, one for the best average of four groups, and one for the smallest single group. In the other two classes only the average for the four groups is considered.

The first match, fired in July, 1944, while the war was at its peak, was not widely publicized. Rifles and ammunition components were scarce, and the match drew only a small group of riflemen. The hunting-rifle match was not fired in this first meet. This shoot created a lot of interest among dyed-in-the-wool riflemen, and the second of the series, in 1945, drew an entry list of about forty, as did the third event fired on July 21, 1946.

Some surprisingly small groups were fired in the second meet, conditions being practically perfect. In the third meet, a stiff, fishtail wind accompanied by a heavy mirage, from ten to two o'clock, probably widened nearly all the groups fired, the mirage being the worst offender. Results on the whole, however, were more consistent than in the previous years, and more good groups were fired. This indicates an increase of interest in accuracy, which is one of the purposes of these matches. Unfortunately, no complete record of all rifles and loads entered was made for the first two matches. The results were so interesting that I took the task upon myself last year and I believe the accompanying data will be of interest to all

**WHAT IS THE ULTIMATE ACCURACY OF OUR MODERN RIFLES? HERE'S AN ANSWER, FROM A GROUP OF EXPERIENCED WEST COAST RIFLEMEN**

riflemen, and especially to those who do not have facilities for carrying on extensive tests for themselves. In practically all cases, the rifle was handled by an experienced man and it is doubtful that anyone else could get much better results with the same rifle. The variation in holding by the shooters was probably negligible except in a very few cases.

No short series of tests can be completely conclusive, and there are any number of wildcats which were not represented, but an analysis of the results brings out a few outstanding facts. The .220 Swift and its satellites, the Wilson .220 Arrow and the .22-250 Varminter, have consistently come out on top, with the rifles using factory cases having a slight lead, which is negligible for all practical purposes. One of the most gratifying results, at least to those of us who have long been fond of the .30-'06, is the fact that although staggering under the weight of its more than forty years of excellent performance, it is still able to hold its own in the best of company. Many of us had little doubt about it. This may be a shock to some of the newer shooters who are not too familiar with this old stand-by and who have been reading the ballyhoo given some of the late-comers in the parade of calibers. Give the .30-'06 the right diet and it will never let you down.

There is no doubt that the spectacular performance of the .220 class of cartridge is due to just one thing. That is the Wotkyns-Morse 8-S 55 grain bullet. In my own testing of several hundred rounds for these matches, these bullets have given consistently better performance than any other, and in most cases the groups have been about half the size of others. The M1 Government bullet is not far behind. These two bul-

*That* **JIM DAVIS** *can hold his own in the tough rifle competition around Seattle, where he lives, is a reasonable endorsement for any shooter. A Camp Perry veteran, Davis is most interested in accuracy, and his success in the Annual Snipers' Congress, which he describes, is one practical result of that interest. His profession is that of registered architect.*

lets (and the 180 grain commercial boattail) are the only real improvements in bullet design for the last forty years, to my knowledge at least, and they have consistently been the top performers in these tests. Many of us have known for years of the excellent performance of the Wotkyns-Morse bullets, but none of the larger factories have made any improvement since the advent of this caliber.

It will be noted that the two best performances in this last match were made with an identical load, except primers, in two different calibers—.220 Swift and Varminter. These cases have about the same capacity. I have long had the opinion that the shape of a cartridge case had little effect on accuracy. There is very little similarity between the .38-55 and the .220 Swift, except that both are made of brass, yet they are perhaps the two most accurate calibers produced to date for medium ranges. I have no doubt that my own rifle will make one-inch groups consistently at 200 yards if I could hold it that close. With my best holding there is at least one-half-inch movement, possibly more, of the cross hairs. I fired only two test groups of ten shots each at 200 yards before this match and the largest, fired with new cases, was one and five-eighths inches. The smallest was three-quarter inch high and one and five-sixteenths inches wide except for one shot, which was a bad letoff, and widened the group to one and seven-eighths inches. Five shots were in one hole seven-sixteenths inch wide, all measurements center to center of widest holes. Deduct one-half inch for error in aim and it gives practically one-inch groups for ten shots. The smaller group was fired with used cases, indicating about one-half-inch difference over new unfired cases. The ultimate accuracy of this rifle has not been reached, as the cases were not weighed and the bullets were given only a visual inspection for damaged points. Also, as stated, I have not reached perfection in holding.

Accuracy in rifle shooting is made up of many factors. All beginners and some old-timers overlook at least some of them. As a result, they seldom make the "high ten." A few hints gleaned from thirty-six years of rifle shooting of all kinds, more than twenty years of it hard-boiled com-

## SEATTLE SNIPERS' CONGRESS 1946

ANY RIFLE CLASS—200 YARDS

| *Place* | *Competitor* | *Rifle* | *Cal.* | *Load* | *Average 4 5-Shot Groups* | *Smallest 5-Shot Group* |
|---|---|---|---|---|---|---|
| 1 | J. I. Davis | Action: Mauser<br>Barrel: Win. No. 3 | .220 Swift | 33 Gr. 3031<br>W. M. 8S 55 Gr.<br>Western 8½ | 1.97 | 0.94 |
| 2 | P. Jackson | Win. Model 70 Target Wt. | .22–250 Var. | 33 Gr. 3031<br>W. M. 8S 55 Gr.<br>Dominion 8½ | 1.98 | 1.55 |
| 3 | A. M. Learned | Win. Model 70 Bullgun | .220 Arrow | 36 Gr. 4320<br>W. M. 8S 55 Gr.<br>Rem. 9½ | 2.08 | 1.60 |
| 4 | W. Burnham | Win. Model 70 Target Wt. | .220 Swift | 25 Gr. 4759<br>W. M. 8S 55 Gr.<br>F. A. 70 | 2.10 | 1.30 |
| 5 | R. Janson | Mauser<br>Win. No. 3 | .220 Arrow | 38 Gr. 4064<br>W. M. 8S 55 Gr.<br>Win. 120 | 2.37 | 1.48 |
| 6 | R. Meister | Springfield Bullgun | .30–'06 | 36.2 Gr. Hivel 2<br>M1 172 Gr. B. T.<br>F. A. 70 | 2.38 | 1.39 |
| 7 | H. Atwood | Mauser<br>Win. No. 3 | .22–250 Var. | 36½ Gr. 4064<br>W. M. 8S 50 Gr.<br>Rem. 9½ | 2.61 | 1.71 |
| 8 | L. Swall | Mauser<br>(Barrel Unknown) | .257 | 31½ Gr. 4320<br>117 Gr. S. P.<br>Rem. 8½ | 2.90 | 1.74 |
| 9 | L. Swall | Springfield<br>(Bbl. Unknown) | .22–250 Var. | 35 Gr. 4320<br>Sisk 54 Gr.<br>Rem. 8½ | 3.08 | 1.96 |
| 10 | A. Frombach | Springfield—<br>Win. Barrel | .257 | 40 Gr. 4320<br>100 Gr. Western OPE<br>Dominion 8½ | 3.21 | 1.82 |
| 11 | R. Meister | Mauser<br>Win. No. 3 | .220 Arrow | 36½ Gr. 4320<br>W. M. 8S 55 Gr.<br>F. A. 70 | 3.40 | 2.64 |
| 12 | J. A. Gribble | Springfield<br>(Bbl. Unknown) | .220 Swift | Unknown | 3.68 | 2.18 |
| 13 | H. F. Prior | Win. Model 70 | .257 | Unknown | 4.04 | 2.46 |
| 14 | C. Louther | Win. S. S.<br>Ackley | .22 Hornet | Factory | 4.93 | 3.49 |
| 15 | D. McKay | Win. 54<br>Niedner | .30–'06 | 43 Gr. 4064<br>M1 172 Gr. B. T.<br>Rem. 9½ | 5.13 | 3.75 |
| 16 | A. G. Latimer | Win. Model 70 | .270 | Western 150 Gr.<br>S. P. Factory | 5.60 | 4.28 |
| 17 | C. Wegs | Win. Model 70 | .270 | 150 Gr. S. P. Factory | 5.65 | 4.80 |

1946 LIGHT RIFLE CLASS—.30 CAL. OR LARGER

| | | | | | |
|---|---|---|---|---|---|
| 1 | W. Burnham | Mod. 70 Win. | .30–'06 | 36½ Grs. Hivel 2<br>M1 172 Gr. B. T.<br>F. A. 70 | 2.55 |
| 2 | C. King | Mod. 70 Win. | .30–'06 | 45 Gr. Pyro D. G.<br>M1 172 Gr. B. T.<br>F. A. 70 | 3.52 |
| 3 | R. Meister | Springfield | .30–'06 | 36.2 Hivel 2<br>M1 172 Gr. B. T.<br>F. A. 70 | 3.77 |
| 4 | A. G. Latimer | Mod. 70 Win. | .30–'06 | 48½ Gr. 4320<br>M1 172 Gr. B. T.<br>Western 8½ | 4.24 |
| 5 | R. Janson | Krag | .30–40 | 40 Gr. 3031<br>M1 172 Gr. B. T.<br>F. A. 70 | 4.41 |
| 6 | J. I. Davis | Enfield | .30–'06 | 37½ Gr. Hivel 2<br>M2 150 Gr.<br>Peters 12 | 5.48 |

LIGHT RIFLE CLASS—UNDER .30 CAL.

| | | | | | |
|---|---|---|---|---|---|
| 1 | H. Atwood | Mod. 70 Win. | .220 Swift | 32½ Gr. 3031<br>W. M. 8S 55 Gr.<br>Win. 120 | 3.17 |
| 2 | W. Burnham | Mod. 70 Win. | .220 Swift | 25 Gr. 4759<br>W. M. 8S 55 Gr.<br>Win. 120 | 3.23 |
| 3 | A. Frombach | Springfield<br>Win. Bbl. | .250 | 36 Gr. 4320<br>Speer 100 Gr.<br>Dominion 8½ | 3.26 |
| 4 | A. Apgar | Mod. 70 Win. | .220 Swift | 32½ Gr. 3031<br>W. M. 8S 55 Gr.<br>Win. 120 | 3.86 |
| 5 | A. G. Latimer | Mod. 70 Win. | .270 | Western 150 Gr.<br>S. P. Factory | 3.93 |
| 6 | W. Burnham | Mod. 70 Win. | .270 | 36 Gr. Hivel<br>130 Gr. O. P. E.<br>Win. 120 | 4.19 |
| 7 | R. E. Baker | Win. No. 2 S. S.<br>Sukalle Bbl. | .22K–<br>Lovell | 16 Gr. 4198<br>Doering 55 Gr.<br>Rem. 6½ | 4.25 |
| 8 | C. E. Frombach | Mauser<br>Bbl. Unknown | .257 | Unknown | 4.48 |
| 9 | C. Wegs | Mod. 70 Win. | .257 | 117 Gr. S. P.<br>Factory Load | 5.58 |
| 10 | L. Swall | Mauser<br>Bbl. Unknown | .22–250<br>Var. | 35 Gr. 4320<br>Sisk 54 Gr.<br>Rem. 8½ | 5.74 |

petitive shooting will, I hope, prevent a lot of headaches and disappointments to the army of beginners that will likely take up the game within the next few years.

Since rifles chambered for factory cases have proved themselves as good or better than any wildcats tried to date, nothing will be gained by going to the trouble and expense of reshaping them. Little is lost, either, except the cost, the extra time spent, possibly a slight loss in velocity, and the fact that you cannot use factory ammunition in a pinch, with safety. My own heavy-barrel .220 rifle was originally a .220 Arrow made up by L. E. Wilson of Cashmere, Washington, with Mauser set trigger action and Winchester No. 3 barrel. It was an excellent job and accurate, but being allergic to extra work and not liking the idea of spending a lot of my limited time working on cases, I had it opened up to take the factory case. It performs at least as well, and I believe a little better, with exactly the same load, as it did before. Extraction is easier than with the Arrow chamber, which is in contradiction with some statements I have read on the subject. Pressures are lower and it is possible to use about three grains more powder in the factory case.

If you would load the best possible ammunition for your rifle, your loading tools should, in addition to being accurately made, possess the following characteristics. The priming operation should be visible, so that the operator can see at a glance whether the primer is starting in straight or askew, and permit him to correct it, if necessary, before ruining the primer. The priming punch should be adjustable so that it can be set to seat the primer the proper depth when the lever is thrown all the way over. Then, there is never any doubt about the primer being seated the right depth. The priming punch should be shaped to fit the contour of the primer and should be so designed that it can be made cheaply and changed quickly. When using different-shaped primers, the punches can then be changed easily.

The only bullet seater that will seat a bullet perfectly is the die-and-plunger type, which resembles a short section of a rifle barrel with a chamber cut the same as a rifle barrel, except with a little more tolerance to permit expanded cases to enter without sticking. The bore is cut without rifling and just large enough to permit the bullet to pass through without binding. The plunger, or seating punch, is reamed to fit the contour of the bullet and should also be designed so that it can be made cheaply and interchanged to suit different-shaped bullets. It should be adjustable to regulate the seating depth. Seaters of this type are generally used separately from the loading tool. The case, primed and charged with powder, is inserted from the bottom and the bullet from the muzzle, base down. The bullet is held in a straight line with the case and cannot strike the mouth of the case or be started in any way except in a straight line. A little home-type bottle capper fastened to the bench makes a perfect press for seating bullets with this type of seater.

So far as accuracy is concerned, speed in loading is no consideration whatever. It is better to spend one hour on each cartridge and win a match, than to spend one minute on each and come out second. The trend toward higher velocities, more speed in loading, and faster shooting does not create greater accuracy. A balanced load in a perfectly loaded case, fired in a good barrel attached to a properly tuned-up action that is bedded solidly in the stock, is all that is necessary. A tight chamber is fine, but a reasonable amount of tolerance does no harm, provided the cases have been fired in the chamber to size them. The chamber in my own .220 is not what I would call "tight," as the cases expand about .005 inch at the shoulder, but the difference between unfired cases and used cases is, as stated before, about one-half inch at 200 yards.

Stock bedding gets the blame for a lot of bad shooting that may be due either to poor loading or poor handling. I believe it is true, however, that most amateur stocking jobs are poorly bedded, due either to lack of skill with tools or lack of knowledge of the right method of bedding. During the past eighteen years I have made upwards of a hundred stocks for all kinds of guns, mostly target rifles. I do not recall any that failed to perform as well or better than with the original stock. In a very few cases warping occurred after fitting and correction had to be made, but this was due to unseasoned wood. All the stocks I have ever made were bedded solidly all the way through, the bottom of the receiver at the front guard screw being bedded slightly lower (about $\frac{1}{64}$ inch) than at the tang and tip of fore-end. This makes a solid job throughout and there is not enough upward pressure on the barrel to make shots string up and down when heating occurs, but there is enough to prevent rattling when the rifle is struck on the butt or side. Also, there are no unsightly gaps between wood and metal for water and dirt to work into. Some factories fit their stocks with considerable clearance between wood and metal, but this is to save labor and not to make it shoot better. It takes real skill and a lot of time to fit a barrel and action closely.

Primers are also an important consideration in relation to accuracy—more important than most shooters think. In my own .220 rifle, Western 8½ primers (when I can get them) have consistently given smaller groups than any other I have tried. This does not necessarily mean that it is the best primer made, and neither have I tried them all. The Winchester 120 also does very well, but any other tried so far will double the size of the groups, with my favorite load. After you have found what you think is the best bullet and powder charge for your rifle, try the same load with all the different primers available. You will likely be surprised at the results. Some powders ignite more easily than others and do not require as hot a primer as the slower-burning powders.

It will probably take 500 to 1,000 rounds of experimental firing to determine the best load for any particular rifle, but it is worth the effort if you are going to do any competitive shooting or long-range field work. Almost any of our standard rifles, or special rifles made up by gunsmiths who know their business, will shoot well if properly "tuned up" and loaded correctly, provided the man behind it performs with half the precision of which the rifle is capable. ◆ ◆ ◆

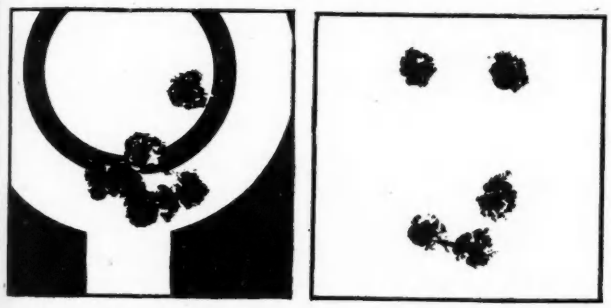
# .25 Caliber HORNET

By F. C. NESS

BILL CORSON SAID IT COULDN'T BE DONE, but Al Barr did it all over again. Al had just fired three shots from his Single-Action Colt at a target 400 measured yards away. All three shots hit the target and so did the next three when he repeated the stunt. They happened to make an incredibly small group which I shall not cite because I wouldn't invite the reader's doubt. Besides, the important thing is that all six shots hit the target on the 28-inch 400-yard frame.

This was no ordinary Colt that Barr was shooting. Even the caliber was one never used for target shooting in rifle or handgun—at least not officially or even conventionally. Barr had utilized an old .25-21 Stevens rifle barrel of mine by cutting off some eight inches for the revolver, and saving the rest of it for a low-wall Winchester single-shot rifle action. Al Marciante fitted them both, made a reamer and chambered them, as well as a rifle for Carl Nix.

Al Barr's idea dated back to Walter Oakey's .25 caliber Hornet squirrel rifle and the nice fifty-yard groups he got with lead bullets and three grains of Hercules Unique. All of our cartridge experimenters are extremely fond of necking



**Left: Fifty yard group with .25 Hornet rifle. Load was 7.0 grains 4759 and 74 grain bullet. Right: Same load, same sight setting, gave this 100 yard group, landing 6.35 inches low. Both groups are reproduced in actual size**

cartridges down, but Walter Oakey and Herbert Longo formed a duo of exceptions when they necked the .22 Hornet case *up*, to take .257-inch bullets. At least one of Longo's loads is shorter than the standard Hornet, but Barr left his almost full length, so that it just fits the Single-Action Colt cylinder with a flat-nose 74 grain bullet properly seated.

Barr had a time of it with the big center-fire firing pin of his Colt until he dressed it down for the small-size Hornet primers and filled the hole in the recoil plate to correspond. He did a neat job of installing a long-base adjustable Smith & Wesson rear sight in the top strap of the frame. For testing, he fitted a target rifle front sight of the hooded variety. Of course, such bulky front sights are not intended for holster handiness, or quick draw, but so far it has not been any particular handicap in either the shoulder holster or on the belt. Finally, Al fixed up the hammer spur, the trigger, and the grip, and she was ready to go. I found the gun well balanced, nice to shoot, and a good grouper with unusual ballistics. There was some difficulty in forcing in cartridges after the cases had been expanded by heavy loads of powder or by repeated reloading of full-power charges without com-

**Barr's Single Action, rebarreled with a cut-off length of .25-21 barrel and rechambered for .25 Hornet cartridge. Cylinder was altered for small cases**

plete resizing of the heads. This common revolver fault can be overcome.

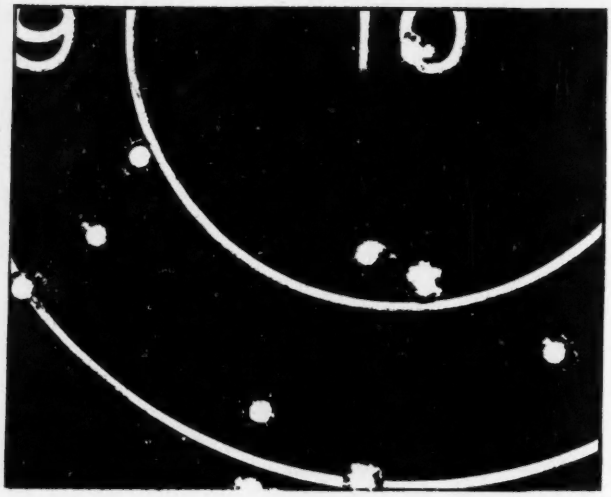
There followed a year of experimenting with bullets and loads to find the best combination. Although it gave surprising field ballistics and pleasing accuracy with several combinations, the 74 grain bullet and either 7.0 grains of No. 4759 or 8.0 grains of No. 2400 seemed best, the latter for a powerful field load and the former for regular use. W.R.A. 116 or R.A. 1½ primers were used, and, alternately, a gas-check bullet from an Ideal mold, revamped, or a W.R.A. Perfection plain-base lead bullet. These were sized to .2575 inch for Winchester cases and to .2587 inch for the thinner Remington case necks, but they worked well the other way, too.

In the course of these experiments, Al Marciante cut a cherry for a 66 grain bullet and made a mold, but this lighter bullet worked best in Carl Nix's rifle which had a .25 Stevens rim-fire barrel with a seventeen-inch pitch of rifling. Although inferior in Barr's two barrels, it was not too bad, with consecutive groups ranging from 3.62 to 4.82 inches in the revolver and from 1.16 to 2.96 inches in the rifle, all at fifty yards. In Nix's rifle the five-shot groups with this bullet ranged from .84 to 2.22 inches. Since the above include all

**THE .22 HORNET, NECKED UP, MAKES AN INTERESTING WILD-CAT FOR EITHER RIFLE OR HEAVY-DUTY HANDGUN . . .**

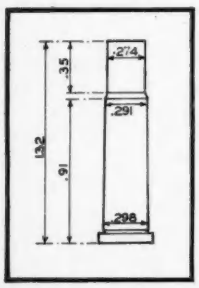
experimental loads, it is obvious that the load and not the bullet was at fault in some instances. At that, they are all practical squirrel loads in both rifles.

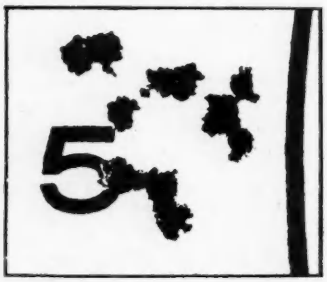
Now, to show what the .25 Hornet could do in the revolver with the 74 grain bullet, an ordinary performance with 7.0 grains No. 4759 was five shots in 2.68 inches at fifty yards



**A fifty yard group, actual size, fired with Barr's remodeled Single Action in .25 Hornet caliber. Load was 8.0 grains 2400 and 74 grain lead bullet**

from rest, and often only the lone flier would be out of a one and one-quarter-inch spread. In order to burn No. 2400 adequately, the larger diameter, or .2587-inch bullet and a full charge of 8.0 grains weight had to be used. The last test with this combination put ten of the 74 grain bullets into 3.17 inches at fifty yards with eight in 2.35 inches. At 100 yards the same combination made a ten-shot group of 4.86 inches with eight shots in 3.14 inches. Remington cases and R. A. No. 6½ small-size rifle primers were used. That is fine accuracy for a handgun, and the ballistics were even better. The center of impact was an inch high at fifty yards, and 1.80 inches high at 100 yards. One of these groups is



**Left: Dimensions of .25 Hornet cartridge, taken from fired case. Right: A remarkable group, fired with Nix's .25 Hornet rifle. From 50 yards, bench rest, six different loading combinations, two of each, grouped in 1.18 inch**

shown here. An offhand fifty-yard score of 87 x 100 was also fired with the regular load of No. 4759 powder, in order to indicate the practical balance and handling qualities of the .25 Single Action. From rest, other five-shot groups ran 2.74, 3.42, 3.50, 2.42, 1.55, and 2.05 inches. The smallest group was made with the regular load. The next smallest was with 8.5 grains of No. 4227. Of these, the biggest four-shot group was 2.17 inches and the smallest, 1.18 inches.

In Barr's rifle, the regular revolver load did fairly well, the five-shot groups running 2.85, 0.87, 1.05, 0.64, and 0.76 inches at fifty yards, and 2.48, 2.28, and 1.15 inches at 100 yards. Many combinations have been tried in the rifle over the past year, but the most accurate were those with the 74 grain gas-check No. 257616 sized to .2575 inch, and with the plain lead bullet, sized .2587 inch. The latter was best with 3.5 grains of Unique, and the former with 4.0 grains Unique or 6.5 to 7.0 grains weight of Hercules Sharpshooter. The latter propellant has been extensively used as a high-velocity powder in the .25-20 cartridge.

These best loads, respectively, gave five-shot groups of 1.08, 1.02, 1.00, and 1.00 inch at fifty yards. The squirrel load consisted of the round-nose, gas-check bullet and 3.0 grains weight of either No. 5 or No. 6 Pistol Powder, both of which grouped into less than two inches spread at fifty yards. The poor resolving power of the 1X Weaver shotgun scope imposed body shots that did not kill well. One squirrel escaped wounded and another had to be hit twice, on body shots. These squirrel loads were zeroed at fifty yards and landed from 6.20 to 6.70 inches below aim at 100 yards. Note the relative impacts of the other loads at both ranges. All groups listed are at fifty yards, unless otherwise noted.

*3X Wollensak, 66 Grain Lead Bullet, .2587 Inch (5-Shot Groups)*

| | | | |
|---|---|---|---|
| 7.0 grs. | No. 4759 | 1.27 inches | 0.50 inch high |
| 7.3 grs. | No. 4759 | 1.48 inches | 0.50 inch low |
| 7.6 grs. | No. 4759 | 1.05 inches | 0.43 inch low |
| 7.0 grs. | No. 2400 | 1.63 inches | 0.70 inch low |
| 7.5 grs. | No. 2400 | 1.84 inches | 0.00 inch — |
| 7.6 grs. | No. 4759 | 0.98 inch | 0.32 inch low |

*1X Weaver Shotgun, 74 Grain Bullet, 7.0 Grs. No. 2400*

| | | | |
|---|---|---|---|
| Plain Base | .2587 inch | 1.06 inches | 0.95 inch high |
| Plain Base | .2587 inch | 2.28 inches | 0.00 inch — |
| Gas Check | .2587 inch | 1.97 inches | 0.75 inch high |
| Gas Check | .2575 inch | 1.03 inches | 0.22 inch low |
| 64-gr. Lead | .2587 inch | 1.70 inches | 0.70 inch high |
| 3.5-gr. Unique | .2575 inch | 1.35 inches | 1.00 inch high |
| 5.0 Bulk Shotgun | .2575 inch | 2.28 inches | 0.50 inch high |

*3X Lyman Expert, 74 Grain Bullet, 6.8 grs. Sharpshooter*

| | | | |
|---|---|---|---|
| Gas Check | .2575 inch | 1.50 inches | 0.60 inch low |
| Gas Check | .2575 inch | 1.06 inches | 0.30 inch high |
| Plain Base | .2575 inch | 0.84 inches | 0.97 inch high |

*7.0 Grains No. 4759, 74 Grain Bullet*

| | | | |
|---|---|---|---|
| Plain Base | .2587 inch | 0.64 inch | 0.30 inch high |
| Plain Base | .2587 inch | 0.73 inch | 0.60 inch high |
| Gas Check | .2587 inch | 0.87 inch | 0.47 inch high |
| Plain Base | .2587 inch | 0.46 inch | 0.00 inch — |
| Plain Base | .2587 inch | 1.14 inches | 0.50 inch high |
| Plain Base | .2575 inch | 1.70 inches | 0.70 inch high |

*74 Grain Gas Check, 7.0 Grains Powder*

| | | | |
|---|---|---|---|
| .2587 inch | No. 2400 | 0.97 inch | 0.30 inch high |
| .2575 inch | Sharpshooter | 0.95 inch | 0.00 inch — |
| .2575 inch | Sharpshooter | 1.50 inches | 0.15 inch high |

*3X Lyman Expert, 74 Grain, 7.0 Grains No. 4759 (5-Shot Groups)*

| Bullet | Size | Group and 50-yd. Impact | 100-yd. Group & Impact |
|---|---|---|---|
| Gas Check | .2587 in. | 0.76 inch 0.57 inch high | 1.15 inches 5.37 low |
| Plain Base | .2587 in. | 2.85 inches 4.80 inches high | 2.48 inches 6.40 high |
| Plain Base | .2575 in. | 1.05 inches 0.90 inch high | 2.28 inches 3.55 low |

*74 Grain Plain Base .2587 Inch and No. 2400 Powder*

| Bullet | Size | Group and 50-yd. Impact | 100-yd. Group & Impact |
|---|---|---|---|
| 7.0 grs. | | 2.72 inches 0.00 inch — | 4.02 inches 2.50 low |
| 7.5 grs. | | 1.38 inches 4.75 inches high | 3.12 inches 5.25 high |
| 8.0 grs. | | 2.26 inches 3.85 inches high | 6.12 inches 4.35 high |
| 8.0 grs. | GC | .2575 inch 2.94 inches 3.05 inches high | 3.98 inches 4.00 high |
| 9.0 grs. | GC | .2575 inch 2.30 inches 1.80 inches high | 4.83 inches 2.20 high |
| 9.0 grs. | GC | .2575 inch (200 yards) 8.05 inches low | 6.18 inches spread |
| 8.0 grs. | PB | .2587 inch (200 yards) 12.90 inches low | 6.32 inches spread |

The 200-yard groups of less than six and one-half inches with both loads are very good, as small-size .25 caliber loads go, normally, and the relative drop of the 9.0 grain load is flat shooting for such a cartridge. The drop is less than that of the .25-20, high-velocity, 86 grain, factory bullet, but greater than that of the 60 grain Hi-Speed bullet, which would indicate a velocity for this particular charge in the neighborhood of 2,000 feet per second.

The ten-shot groups with the 66 grain Marciante bullet at fifty yards measured 1.88 and 1.84 inches. The one fired with 7.0 grains weight of No. 4759 had seven in 1.03 inches, and that shot with the 7.3 grain charge had the same number of its bullets in .97 inch. That is good enough but the .25 rimfire barrel on Carl Nix's rifle gave even finer accuracy. One of its groups, fired from bench rest with the 438 Lyman scope, was made up of a dozen odd cartridges loaded by Al Barr for his own rifle and it comprised six different combinations. Yet all twelve shots went into 1.18 inches.

With the 66 grain Marciante bullet, Carl's five-shot fifty-yard groups are uniformly good. With 7.1 and 7.3 grains No. 2400, they ran 1.05, 1.15, and .80 inches. With 6.8 and 7.1 grains No. 4759: .84, 2.22, 1.40, 1.72, 1.32, and 1.00 inches, consecutively; also: .85, 1.23, and 1.08 inches. With the best load of 7.4 grains weight, they were better, or: .73, .83, .68, and .54 inch. The next to the last of these loads had pistol priming; most of the others, W.R.A. 116 rifle primers. Barr's rifle and revolver may be somewhat more versatile in handling all makes of components and all types of loads with a preference for Remington components with No. 4759 powder. ♦ ♦ ♦

# ACCURACY WHERE IT COUNTS!

I HAVE VERY OFTEN NOTED that editors and gun writers, in describing accuracy, have omitted all except group size. For years, I have bludgeoned some of them for not describing *practical* accuracy, such as is found in field shooting. There is a whale of a lot of difference. Every shooter should be familiar with this problem of accuracy, but it is surprising how many old time shooters know nothing about it. Years ago I was in a position where I had the entire winter free for experimental shooting, my job being such that I could do this. I fired many thousands of rounds of just experimental shooting over a period of years and the results were most startling. What led me to such shooting was the fact that I had many unaccountable misses in the field on eagles. At that time there was a bounty of one dollar on each eagle, and to miss was not only aggravating but costly. So, I set out to find exactly what was going on *at the target*. I placed targets at 200 yards up on the mountainside along a trail that would approximate eagle shooting, then I fired at them from all angles, positions, and different ranges, firing five-shot groups from each change so as to get a good picture of results. The results were unbelievable with some rifles, and rather discouraging with some of the best light rifles, such as the fine old DCM Sporting Springfield.

I well remember my first experience with my DCM .30-'06 at 200 yards. I shot up at an angle exactly like that of many of my eagle shots, after first carefully sighting it in at 200 with fine handloads and a Fecker target scope. It grouped right at three inches on the level, and smack in the center of the six-inch bull. Then I fired five shots at the target on the mountain. These five shots were half out of the bull, four inches high and to the right. Then I moved to a new position, used the gun sling, and fired five more shots. These all went into four inches, but low and to the left, with about half of them out of the black. On the same target I fired several more groups from different positions and holds, and most of the shots moved around as the others had, although each five-shot group was in about three inches. Even with that fine rifle and under such conditions, the composite group at 200 yards was about nine to ten inches when all individual groups would go only three inches. That is a lot different from simply talking about group size, and I learned the hard way why I was missing so many eagles. With fine stock bedding, and by being careful to hold the rifle in my hands as nearly the same as possible for each shot, and getting the stock against my shoulder the same way, I found I could reduce the composite group a great deal.

Because of the changing of impact, and because of the conditions we have here in the field, the shooting sling is so impractical that I have been forced to discontinue its use, and I find that much better results have come from not using it. My travel in the field is largely by open speedboat, and even in summer this calls for heavy clothes and usually a waterproof windbreaker or raincoat over the whole. To get into a sling with these clothes is impossible, particularly for a quick or unexpected shot. Added to this is the lack of time to try to adjust oneself to the tension so as not to cause the rifle to shoot slightly different, and the fact that nearly always our beaches are rough and rocky so that one may shoot half standing and half lying, sitting, or completely prone. Such conditions make the sling absolutely impossible for field shooting, so I have not used it for years except for experimental shooting. Instead I am always able to find a rest of sorts, using rocks, logs, or chunks of wood. It is surprising how adept one can become at finding and adjusting himself to such shooting. I find I can flop down on the beach on my belly most any old place, and either find or make a rest that is handy and get a shot off, while one not used to it is still looking for a position. Many times I have checked these positions to see what my group size would be under these conditions, and there is not a half-inch average difference at 200 from shaking myself down into a nice, comfortable position on the mat at our range. These are a few of the reasons why I do not use the sling in the field.

The best rifles I have ever got hold of for placing their first shot in the regular group are the bolt actions in the hot-shot .22s. I simply wipe out the oil in the morning and almost always the first shot is right with the others. I always like to keep my rifles sighted in, that is these varmint rifles, to shoot just one and one-half inches high at 200 yards with target scopes. Then they are right on at 250 and only about three inches low at 300 yards.—*Hosea Sarber, Petersburg, Alaska.*

# Ammunition for Foreign Rifles

By COLONEL E. H. HARRISON

## CONCLUSION

*In Part I, Colonel Harrison listed, by their German and English names, all cartridges common to the United States and continental Europe. The confusion which results from the similarity of many foreign cartridges, the arms in which each cartridge can be used, and the precautions which must be taken before using any foreign ammunition were discussed. Also covered was the selection of powder charges and primers to be used in loading foreign ammunition. Since, almost invariably, American cartridge cases must be utilized in handloading ammunition for foreign rifles, he takes up in Part II those American cases which can be fitted to chambers of foreign rifles by "fire-forming," those which must be resized, and finally, the complete manufacture of cases for European rifles.*

The chamber of a foreign rifle can be fitted with an expanded American cartridge case by changing the form and position of the case shoulder through "fire-forming," now commonplace in wildcat chambers. This consists simply in firing the American case in the European rifle, preferably with a light load, so that the case expands to exact dimensions of the European chamber. Moderate expansion of case necks, and even to some extent of case bodies when necessary, is practicable by this method. In this way many American cases can be fitted for use in foreign chambers. It is only necessary to avoid the use of fired cases from American factory loads, since these may have been loaded with a mercuric primer. A case contaminated with mercury has lost its strength and is unsuitable for any case-forming operation.

For example, the 8 x 57JR is the rifle caliber most frequently seen in newer three-barrel guns. The case is the same as that of the 8 x 57J except for being rimmed. This chamber is fitted most readily by the .303 British case. The relation between the two unfired cases is shown in Figure 1. (In making such comparisons, actual dimensions are given only where important. Generally, it is only necessary to show where one cartridge is greater or smaller than the other, and this can be perceived at a glance when the two are shown to scale in matched halves.) Necessary expansion of the .303 neck and shoulder in the 8 x 57JR chamber is accomplished very easily. Indicated head diameters show that the body of the .303 case must also expand, sometimes to the extent of about .015 inch more than in its own normal chamber.

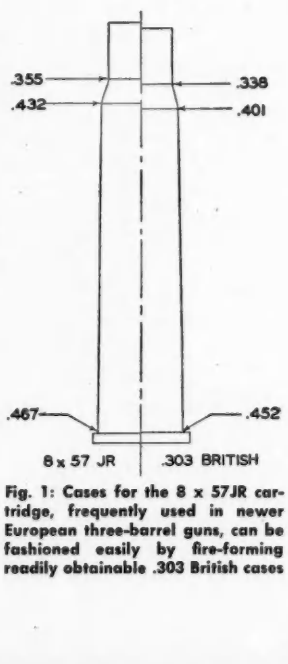



**Fig. 1: Cases for the 8 x 57JR cartridge, frequently used in newer European three-barrel guns, can be fashioned easily by fire-forming readily obtainable .303 British cases**

While this expansion is somewhat above that which is standard even in such large-clearance chambers as some of our older lever-action semi-automatic rifle and pistol calibers, I have found no trouble with it in full charges with good cases. Such fire-forming is perfectly permissible with moderate charges and good cases. The first shot in all fire-forming should be done with a reduced load, as this greatly decreases the chance of losing the case.

Often, though, the unaltered length of the American case will not be satisfactory for the foreign chamber, as happens in the above instance. Generally the case is too long and must be cut off to the correct length for the chamber. For instance, the .30-40 Krag case differs from the .303 British principally in its longer neck. This neck must be cut off to an over-all case length of 57 mm. before the case is suitable for the 8 x 57JR chamber. Another example is the .32-40 case in the 8.15 x 46R chamber, for which use the case must be cut to 46 mm. length (see Figure 2, page 34, December Rifleman). The owner of a fine rifle of 8.15 mm. caliber may prefer to do this rather than rechamber it to .32-40, though he can rechamber with this particular caliber as explained in Part I.

Also, it is generally true that the rim or flange of the American case is some .006 inch or more thicker than the European one. This difference is on the safe side since it *decreases* the cartridge head space, but sometimes it is a little too much and interferes with the closing of the gun. When that occurs, it is necessary to reduce the thickness of the rim by removing a little metal from the *underside* of the rim all around (not from the rear face of the head, since that might leave the primer flush with the surface instead of below). A lathe is a great convenience in the above operation, but not a necessity since it can be done on a moderate number of cases with a file, using a little care and patience and trying the cases in the chamber as a gauge. In hand removal of metal from the underside of the rim, a file with a safe side or edge should be used, since that will eliminate concern about filing into the side of the case. If the rim is a little too large in diameter, which also is not infrequent, it can be reduced in diameter without difficulty.

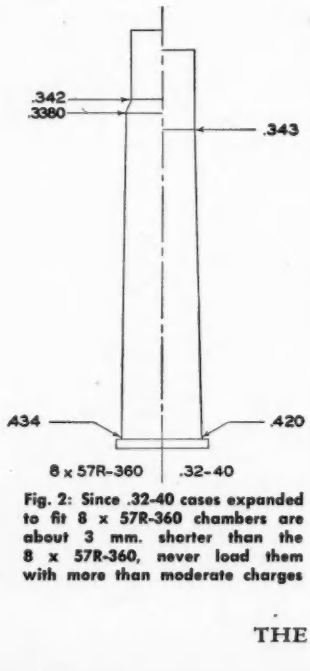



**Fig. 2: Since .32-40 cases expanded to fit 8 x 57R-360 chambers are about 3 mm. shorter than the 8 x 57R-360, never load them with more than moderate charges**

On the other hand, it sometimes happens that the most nearly suitable American case is somewhat short for the chamber, but still it can be used. Figure 2 shows the case of the 8 x 57R-360, a rather common cartridge resembling the 8 x 57JR except more slender bodied,

compared with the .32-40, which is the most nearly suitable American case. The .32-40 case expands to fit the 8 x 57R-360 chamber without trouble, but remains about 3 mm. shorter than the original case for that chamber. With heavy loads this undoubtedly would increase the rate of erosion, but with moderate charges the effect probably is not sufficient to prohibit use of ammunition so made.

While the shoulder expansion is extreme in this particular caliber, I have had no trouble with it, provided the initial expansion is done with a light load. Neck or shoulder splits should not be permitted since they roughen the chamber. When they tend to occur in an extreme expansion, the reloader should resort to preliminary expansion by the hydraulic method described below.

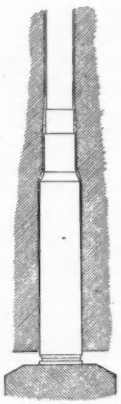


**Fig. 3. Liquid-filled cases fitted with a brass or steel plug, or a full-jacketed bullet, can be inserted in chamber of foreign rifles and expanded by pressure on the plug**

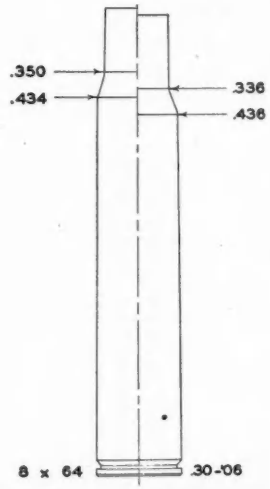



**Fig. 4: Diameters of .30-'06 and 8 x 64 cases are substantially the same. Only the shoulder of the .30-'06 must be moved to provide cases for this foreign rifle caliber**

The foregoing deals with fire-forming *rimmed* cases, which can be done without thought of head space, no matter what their clearances, so long as the rim remains correct. With rimless cases, some special measures must be taken to prevent case separations and other undesirable results of firing with excess head space. One solution is to load the bullet far enough out of the case to secure positive contact with the rifling, relying on this to hold the head of the case back against the face of the bolt. While this is done not infrequently by experimenters with wildcat cartridges, there is danger of the support not being positive enough to insure against the cartridge being moved forward by the impact of the firing pin. If I were using this method, I would take care to load the cartridge with excess over-all length and heavy bullet pull, would be sure to use a reduced load, and would lubricate the case lightly to prevent its gripping the chamber. By the latter measure, case separations are prevented in those high-pressure automatic arms in which the bolt moves while there is high pressure in the chamber. Lubrication of ammunition is a routine requirement of all such arms. However, *full-charged* ammunition should never be lubricated for use in ordinary arms.

Rimless cases can be expanded hydraulically in the chamber before firing. The process consists in placing the cartridge case, filled with water or oil, in the chamber, then imparting a sudden pressure to the liquid in the case by means of a rod lying in the bore with its lower end in the mouth of the case. The first step is to remove the rifle stock to safeguard it, and to spike to the workshop floor a hardwood block, on the edge of which the recoil shoulder of the action can be rested. The cartridge case with a fired primer in place is filled to the neck with the selected liquid, and a full-jacketed bullet or tightly fitting plug of brass or steel is inserted in the neck. (No. 30 motor oil is the liquid possessing about the best combination of viscosity, ease of removal from bore and chamber, and harmlessness to the rifle.) The liquid-filled cartridge is placed in the chamber, the bolt closed, and the rifle held muzzle up with its recoil shoulder (not the rear end of the receiver) resting on the hardwood block provided. A steel rod of the maximum practicable diameter is inserted in the bore with its lower end on the bullet or neck plug. Its upper end is then struck a solid blow with a heavy hammer. Figure 3 shows the liquid-filled case in the chamber ready for expansion.

This method does not expand the whole case, as a full charge of powder would do. The expansion comes almost entirely at the shoulder. This is exactly where it is required, since the objective is to move the shoulder of the case out into contact with that of the chamber and establish positive head spacing. When it is seen by inspection of the expanded case that this contact has been established, expansion can be completed by fire-forming with a moderate charge.

The single positive requirement is that the chamber and the exterior of the case be free of oil. Otherwise air will be sealed in the space between case and chamber, preventing proper expansion. A certain amount of oil escapes when each case is expanded, and this must be removed completely from bore and chamber before the next case is put in.

The most frequently met caliber for which cartridge cases can be provided only by expansion of rimless cases is the 8 x 64, shown compared with the .30-'06 in Figure 4. Body

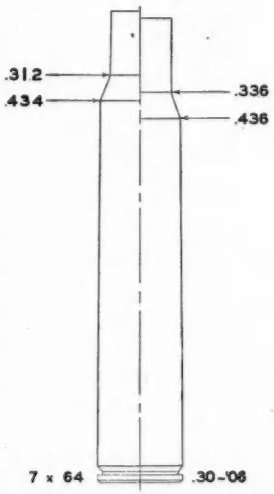



**Fig. 5: Cases for the 7 x 64, another frequently seen caliber, can be made from .30-'06s by first sizing the neck to 7 mm., then expanding shoulder to fit 7 x 64 chamber**

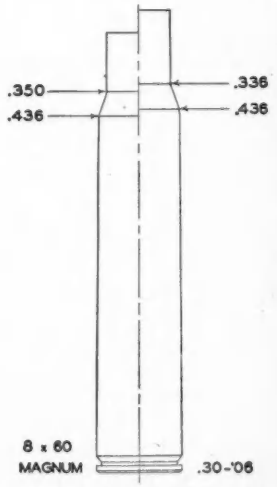



**Fig. 6: Excellent fitting cases for the 8 x 60 Magnum are made by cutting .30-'06 cases to 60 mm. length and sizing full length in 8mm. Mauser die in a heavy bench tool**

diameters of the two are substantially the same, and the required movement of the shoulder of the .30-'06 is easily accomplished. The .30-'06 case does not require cutting off, being already about 1 mm. shorter than the 8 x 64—another example of the substitute case being shorter than the original.

Cases for the 7 x 64, also a modern caliber frequently seen, are made from .30-'06 cases in like manner, as indicated by Figure 5. However, a preliminary neck sizing is required.

Neck and full-length case resizing are so familiar to handloaders that no discussion is required here on the technique of these operations. Since many American cases can be resized to fit chambers of foreign rifles, we shall give some attention to instances where this is possible.

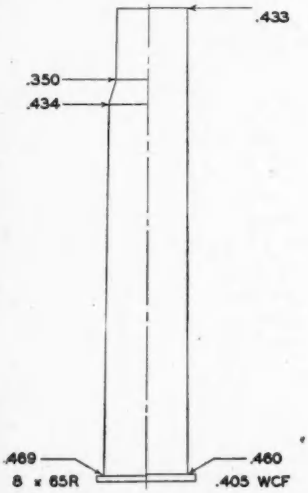



**Fig. 7: .405 WCF is the only American case suitable for resizing to fit 7 x 65R and 8 x 65R calibers. Because the case must expand somewhat, its use is limited to moderate loads**

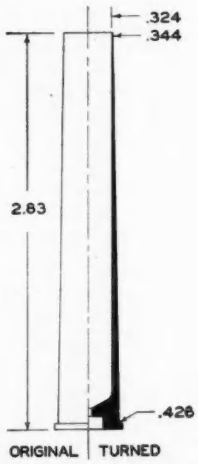



**Fig. 8: A comparison of original and turned 8.1 x 72R cases clearly shows the thickness of rear parts of the manufactured case which reduces powder capacity**

In fitting the .30-'06 case to the 7 x 64 chamber referred to above, it is necessary first to size the neck to 7 mm. This is easily done in one step with a standard 7 mm. neck die in a bench tool, or with an Ideal "7 mm. Mauser" full-length die, by driving the case into the die only far enough to size all the neck. Then the shoulder is expanded forward to fill the 7 x 64 chamber. Another important example of the same procedure is the 7 x 57R, the rimmed counterpart of the 7 x 57. The .303 British case is used (or the .30-40, cut to 57 mm. length), the neck sized to 7 mm. and the case then fire-formed in the 7 x 57R chamber.

More often it is necessary to size full length, setting the shoulder back to a new position. At the present time, for example, a principal source of "8 mm. Mauser" (8 x 57J) cartridge cases is .30-'06 cases cut off and resized full length to that caliber. Fortunately, the same thing can be done to provide cases for a number of important 7 mm. and 8mm. foreign cartridges, without the necessity of making special dies, by careful use of available "7 mm. Mauser" and "8 mm. Mauser" full-length dies. For instance, the 8 x 60 Magnum (Figure 6) is an excellent cartridge, slightly shorter than the .30-'06 but loaded to fully equal power. To provide cases, the .30-'06 case is cut to 60 mm. length. The shortened .30-'06 case then is sized in a standard "8 mm. Mauser" full-length die in a heavy bench tool, the stroke of which is adjusted until the resized case will just permit snug closing of the stripped bolt on it. Since body diameters of the two cases are nearly the same, this results in a most excellent fit.

Sometimes more radical sizing must be done. The 7 x 65R and 8 x 65R, rimmed counterparts of the 7 x 64 and 8 x 64 already mentioned, are calibers of many single-barrel rifles and three-barrel guns. The .405 WCF is the only American case of suitable body diameter and sufficient length (see Figure 7) for resizing to fit these. That case has been necked to a .25 caliber, which furnishes sufficient evidence of the practicability of necking to 8 or 7 mm., but the operation must be done in several steps. Comparative body diameters show that the body of the .405 case will have to expand somewhat on firing, which limits its use to moderate loads, but these should do nicely in three-barrel guns.

While substitutes, from fair to perfect, for almost all European rifle cases can be found under the above categories, there remains one class in which they can not. This class comprises the excellent German black-powder sporting cartridges, which were more highly developed, in fact, than any of our own. The commonest ones form a series, the 7 x 72R, 8.1 x 72R, and 9.3 x 72R. The cases of these little monstrosities are 72 mm. or nearly three inches long, and there is no American case offering any possibility of conversion to them. All three, particularly the last, are numerous among three-barrel guns of older manufacture now in this country. Therefore, if ammunition for these guns is to be obtained, the cartridge cases must be manufactured.

The fact that these cartridges develop comparatively low pressure, have rimmed cases which are tightly enclosed in the gun, and are straight taper, makes it practicable to turn the cases of bronze rod. While most cases are not adapted to this method of manufacture, types conforming to the above conditions are suitable, as I found years ago in bench-rest shooting with Schuetzen rifles. A peculiarity of these three calibers is that their cases actually are straight tapered, not somewhat concaved as in the .32-40 and most other so-called straight-taper cases. This makes turning their bodies unusually simple.

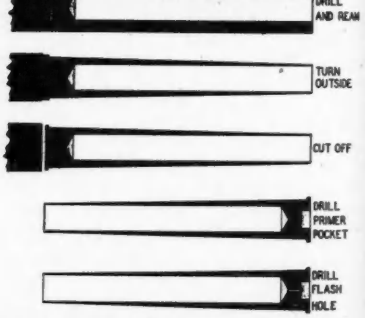



**Fig. 9 (Above): The five steps in manufacture of 7 x 72R, 8.1 x 72R, and 9.3 x 72R cases may be done with ordinary lathe-tooling or, for speed, on an elementary turret setup. A simple flat reamer is used to finish the inside**

**Fig. 10 (Left): 9.3 x 74R cases can be turned to a straight taper and the shoulder produced by fire-forming with a moderate powder load**

Figure 8 compares the original and the turned 8.1 x 72R case. While principal dimensions are given, detailed dimensions for manufacture should be taken from a cast of the chamber. Note the thickness of the rear parts of the case resulting from this method of manufacture—this is still more pronounced in the 7 x 72R, since the head size is the same for all three. On the other hand, the taper of the 9.3 x 72R case is not enough to provide sufficiently thick walls near the head when the powder space is reamed the same diameter from end to end. Therefore, the powder space should be made the same diameter as for the 8.1 x 72R, then ream the neck *only* for the 9.3 mm. bullet.

Figure 9 indicates the steps in lathe manufacture, the example being the 7 x 72R. The simplicity of the process is evident, and also the fact that it is done with ordinary lathe-tooling. However, for speed in production, an elementary turret setup should be used. A simple flat reamer is sufficient for finishing the inside. To avoid sharp corners at the head end of the powder space, the ends of drill and reamer are ground.

There is one other cartridge of sufficiently frequent occurrence to be worth mentioning, which can be provided with cartridge cases only by lathe manufacture. This is the 9.3 x 74R, which is newer than the black-powder series above and came into considerable use for single- and double-barreled rifles. The turned case with its heavier walls and consequently reduced powder capacity cannot be used to develop the full power of this cartridge, which is between that of the .35 WCF and the .375 H&H Magnum. But the case is so large that even in turned form its capacity is sufficient for respectable loads.

The 9.3 x 74R case is slightly bottle-necked, which would be inconvenient to reproduce with ordinary lathe facilities. It is both unnecessary and undesirable to do so. However, the case can be turned to a straight taper and the shoulder then produced by fire-forming, thus increasing case capacity and leaving more than sufficient thickness of brass in the expanded portion. Figure 10 shows the original case and the lathe-made one ready for fire-forming.

Lastly, it is necessary to mention the cartridges for which our methods fail, unless one has the great good luck of finding foreign-made cases for these rather rare calibers. These are the 8 x 75 and 8 x 75R. No American case can be converted to either, and lathe-made cases are not suitable for them. So far as I know there is no solution, and the owner of one of these powerful rifles can only resign himself to admiration without demonstration. ◆ ◆ ◆

# "MARKSMANLY"

THE THOUSANDS OF GOOD FELLOWS and gals who form the rifle and pistol shooting fraternity are regular people. They'll swap stories, take friendly kidding and enjoy the whole gamut of jokes typical of rifle and pistol ranges. They'll lend you equipment, give you tips on shooting aids, and assist you in every way possible before you go on the firing line. In short, they'll do everything but squeeze the trigger for you to see that you get a good score. They are sincere in their efforts to be helpful and sportsmanlike.

With few exceptions, rifle and pistol shooters are not actually temperamental, although some may appear so to an "unmarksmanly" competitor. If anything, they lean over backwards to be broadminded and friendly before or after a match. But there is one time when competitive shooters do not appreciate interruptions or distractions or unnecessary comment of *any* kind. That is during their relay on the firing line.

Any shooter who is trying to do his best does not have time, while on the firing line, to allow for interference, whether the interference is physical or verbal, direct or indirect. To do a good job, the shooter must concentrate on the unavoidable details of position, sighting, squeezing, wind, and time limit. Other variables are detrimental to his performance.

In the interest of promoting better shooter relations on the firing line, and eliminating reasons for deep-rooted but seldom expressed resentment toward other competitors, the following might be considered "Golden Rules" for the competitive shooter:

*Do's*

Arrive at your scheduled target on time.

Provide your own miscellaneous equipment—screw drivers, pliers, cleaning rods, brushes, patches, oil, carbide and lamp, pencil, sight inserts, and time piece.

Do your own coaching in individual matches—the other fellow probably will not appreciate your comments on wind, light, center of groups, et cetera.

Make every effort to shoot on the target assigned to you, leaving the nearby targets to the shooters assigned to them.

Remain quiet when you have finished your string of shots. If you must leave the firing line, retire to a distance from which you will not disturb any other shooters.

Compliment the fellow who has posted a good or winning score—after the match is completed.

Leave the firing line promptly when your relay is completed, and take your equipment with you.

*Don't's*

Don't arrive on, or depart from, the firing line in a cloud of dust, thereby covering the equipment of shooters on adjoining firing points with dirt and grit.

Don't wait until the relay is being checked on the line by the range officers to borrow some item from your neighbor.

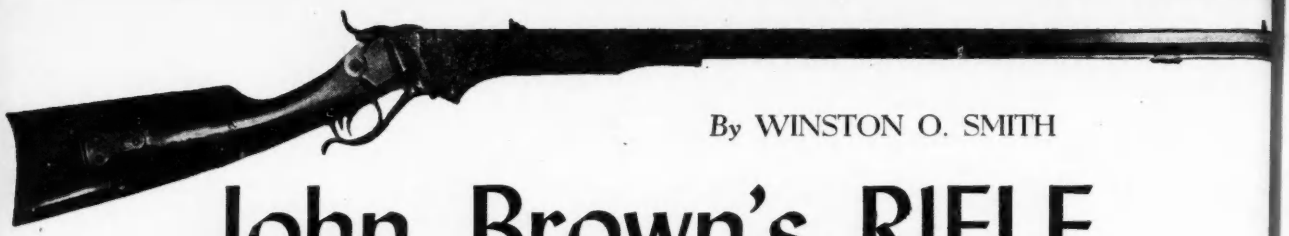
Don't speak to the fellow next to you while he is shooting his string of shots, either to ask questions or volunteer information.

Don't hold a "bull session" at the heels of any competitor who is still shooting, or in a tone that will reach any shooters on the line, regardless of where you are.

Don't "ride" the fellow who is leading at the end of one stage of any match, or "pressure" the leader in an aggregate.

Don't leave empty shells or other debris on the firing point or shooting stand.

Don't encroach on the space normally belonging to the shooter next to you, either by your position or the location of any of your equipment.—ANONYMOUS. ◆ ◆ ◆



By WINSTON O. SMITH

# John Brown's RIFLE

JOHN BROWN CAME TO NEW ENGLAND in 1857 to plead for money, guns, and supplies for the antislavery fight in Kansas. Under the sponsorship of the abolitionist New England Emigrant Aid Company, he lectured in many New England cities and towns. "Lecture" is perhaps too mild a word to apply to what John Brown said at these meetings. There was an element of mad fanaticism in his manner which inspired his listeners with something akin to fear as well as determination to support the "Free-State" movement in Kansas.

While Brown was in Worcester, Massachusetts, in March of that year, the antislavery leader Eli Thayer presented him with a rifle and a cannon, and Ethan Allen, the famous gunmaker, also donated a rifle. It seems likely that the rifle given by Allen would have been one of his own manufacture. It also seems possible that the one contributed by Thayer might have been the Maynard Sharps which is now in my possession. I say it might have been; I have no proof.

In any event, John Brown came again to New England and left the Maynard Sharps with Charles Blair of Collinsville, Connecticut, whom he visited on June 3, 1859. Blair was the man Brown had engaged to manufacture the now-called "John Brown" pikes. Ostensibly, these pikes were to be given to the free-state settlers, for self-defense against the proslavery raiders. But secretly, John Brown was planning his raid into the Southern slave states, and intended to use these pikes to arm the slaves against their masters!

The United States Cartridge Company obtained this Maynard Sharps from Blair for its collection of firearms. It came into my possession many years later, when the collection was broken up and sold.

This model is probably the most beautiful of all the early Sharps percussion guns, having a richly blued octagon barrel and a superbly polished black walnut stock and forearm. Unlike the Hartford Sharps, the trigger guard is separate from the gracefully curved operating lever, and the workmanship on the entire gun is of the highest type.

Weighing 9.8 pounds, this gun has an over-all length of forty-nine inches and a barrel length of thirty-three and five-eighths inches. It is a "60 bore" gun, with .464-inch groove diameter and .444 land diameter. The front sight is a steel blade dovetailed into the barrel; the "V"-notch rear sight has a vertical adjusting screw. The gun was loaded with a powder and ball charge bound in combustible paper or linen, which was ignited with a Maynard tape primer. There are only three markings on the gun: "60" on the end of the muzzle, the number "5" stamped inside the guard plate on the base of the nipple, and "*Wm. Robertson G. W. Simpson Patent* 1855" on the face of the breechblock.

The gas check used in the face of the block of this rifle is different from any of those used in the Hartford Sharps made by the Sharps Rifle Manufacturing Company. This check, patented by William H. Robertson and George W. Simpson on February 12, 1856, under Patent Number 14,253, antedated the first sliding gas check ring patented April 1, 1856, by Hezekiah Conant and subsequently used in the Hartford Sharps. Robertson and Simpson's gas check consisted of a counterbore in the face of the block with the diameter of the counterbore rapidly increasing from front to rear, thereby leaving a very thin flange in the face. When the gun is fired, the pressure in the large diameter portion of the counterbore springs the thin flange against the barrel breech and prevents most of the gas leakage.

So far as is known, the Maynard Sharps represents the second model Sharps put into production after the patenting of the sliding breech action by Christian Sharps on September 12, 1848, illustrated in the *Scientific American* Magazine, March 8, 1851. The accompanying text stated that arrangements had been made for this model to be made by Butterfield and Nippes, Kensington, Philadelphia, with the exception of those manufactured for the United States Government. However, I have never seen one of these second models which could be definitely attributed to Butterfield and Nippes, although Albert S. Nippes of that firm did make some of the first models. These had an automatic primer different from the Maynard tape.

The writer knows of the existence of four of these Maynard Sharps: The John Brown in the writer's collection; one in another private collection; another illustrated and described in the U. S. Cartridge Company Catalogue, page sixty-six, gun No. 259; and one illustrated and described in C. W. Sawyer's "Our Rifles," gun No. 2 on page 228.

These last two are marked, "MAYNARD GUN CO., CHICOPEE FALLS, MASS.," while the first two bear no maker's name. However, the almost exact resemblance of all four of these rifles indicates that they must have been manufactured by the same maker.

These Maynard Sharps are very fragile in comparison to the sturdy Hartford guns; in fact, the stock of mine was broken at the small when I got it. It is not known when this accident occurred, but the broken stock may have been John Brown's reason for leaving the rifle with Blair. Certainly, this graceful but delicate firearm was not suited to John Brown's rough life in Kansas. Apparently he much preferred the Hartford carbines for his work of freeing the slaves! ◆ ◆ ◆

WINSTON O. SMITH *saw his first Sharps carbine on a bargain table in 1940. His interest awakened, he bought it, and since then has devoted all of his leisure to research on these weapons. He is the author of the book* The Sharps Rifle, Its History, Development and Operation, *published by Morrow in 1943.*

# "BACK-ALLEY BALLISTICIAN"

By ROY E. WEATHERBY

BEFORE THE WAR the ammunition manufacturers did a great deal of experimenting about which the shooting public knew very little. Most of the results were considered highly confidential by whatever company ran the experiments. This was partly because of a normal desire to get the jump on the other fellow and partly due to the fear that inexperienced "wildcatters," lacking proper scientific testing facilities, might blow the heads off trying to duplicate the factory experiments.

During the war the development of electronic devices was applied to the fields of interior and exterior ballistics just as intensively and with just as encouraging results as in other fields. The big ammunition companies know more about what actually happens when a trigger is pulled on a live cartridge today than they have ever known—and they are able to conduct more intelligent and informative tests than ever before.

What effect is all this going to have on the "back-alley" ballistician? In the prewar years many of the outstanding ammunition developments were hatched in the minds of the "nuts" who, American-like, were not satisfied with what they had and set out to improve it, scientific knowledge or no scientific knowledge.

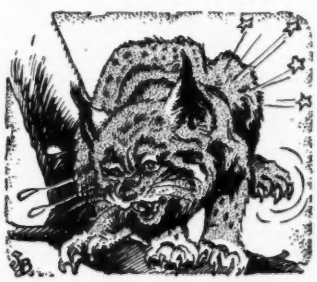
For example, the .220 Swift, the .219 Zipper and the .218 Bee are produced by Winchester. Remington adopted the .257 Roberts. These were all original productions of that little man, that "back-alley" ballistician, that fellow who was never satisfied with the accuracy, velocity, or killing power of his ammunition. There are only a handful of them throughout the country, though there are an armload of "reasonable facsimiles," inexperienced men who claim to obtain the impossible. Nevertheless, we cannot discount the work of men like the late Captain Wotkyns, Sweeney, Roberts, Wilson, and many others. They had their hands in the development of many of today's commercial cartridges. The individual, the little man, has brought about many of the improvements in today's products—in guns and ammunition, as in radio, automobiles, and washing machines.

The rifle is not a necessity in today's life. There are not as many rifles sold as automobiles, radios, refrigerators, and other household equipment. The average sportsman will buy one or two rifles in a lifetime. He will, meanwhile, buy probably a dozen automobiles and pay ten, fifteen, and even twenty times more for the product. For this reason, the automobile companies are able to scrap their expensive dies each year and bring out new models. This is not true in the firearms industry. The arms and ammunition companies have to operate their businesses on a sensible economic basis which will pay their stockholders dividends—without raising the price of their product too high. It simply would not be feasible for them to bring out a new model rifle yearly. However, when a new cartridge has been developed and accepted, when the demand for that cartridge has become so great that it can be manufactured on a quantity basis, they go into production of that ammunition and new rifles in which to use it.

Because this is economically sound, it seems likely that the "back-alley" ballistician will continue to serve a useful purpose, even though the ammunition companies are better equipped then they have ever been to make those scientifically controlled experiments which must precede the manufacture and marketing of any new cartridge on a commercial scale.

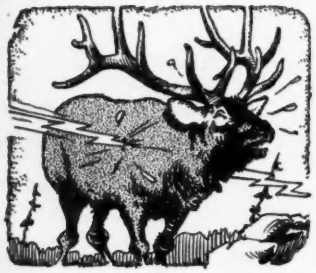
There are only a relatively small number of shooters who are interested in handloading, and that is what one must be to become a real gun nut, a "back-alley" ballistician. One type is the long-range varmint shooter, the hunter who will sit by the hour on top of a hill and shoot ground squirrels, ground hogs, crows, or whatever it may be—not at 100 yards but at 300 and 400 yards, or even farther. He gets a thrill from those long-range shots. He shoots a .220 Swift with a three-and-one-half-inch trajectory over 300 yards, a very accurate rifle. But perhaps he wants to shoot a coyote at 500 yards. The .220 Swift does not have the killing power at 500 yards to do this job. Also, at 500 yards that light bullet loses a lot of its velocity and the trajectory is much greater. This hunter has got to have something heavier, perhaps a .25 or .27 caliber at Swift velocity.

This is where that much-discussed experimenter comes in. He takes the .30-'06 case and necks it down to .22 and .25. He takes the .300 H&H cartridge case, necks it down to different calibers, increases the powder capacity, and gives it different body tapers and shoulder slopes. Occasionally he hits on a combination that gives him the flatter trajectory and greater accuracy he so restlessly seeks. He hasn't accomplished anything that could not have been accomplished better by the arms and ammunition companies, but it has never been put on the market by them. There has been no commercial demand. But sometimes a trend of thought is started which re-



sults in a commercial demand—and in the eventual production of a scientifically engineered cartridge that represents a real step forward in hunting, target, or military ammunition.

I agree with many of the arms and ammunition editors in sporting magazines that there are a lot of experimenters throughout the country who have very little, if any, knowledge of ballistics. But because they are capable of making a reamer for a rifle barrel or can get one made, they start calling it some fancy name and themselves gunsmiths and experimenters. Generally speaking, this individual is not capable of conducting a business, neither is he capable of carrying on the necessary correspondence and, therefore, is heard of very little.



He eliminates himself from being much of a public menace, though he does remain a nuisance. But there are other men in this field who are college graduates, who have made a life study of ballistics and gunsmithing, or who have spent many years experimenting with arms and ammunition. From these men will continue to come many developments in firearms.

Let's let these little men go on necking down large cartridge cases to small calibers. Let them keep on fooling around with their back-alley experimenting. There are new alloys which can be used in our actions that will allow us to build a rifle that will stand much higher pressures, thus giving higher velocity to bullets. There are new metals which can be used that will give us greatly increased barrel life. There are more scientically designed cartridges to be used. Let us have these things now, but in the meantime let the so-called "back-alley" ballistician continue to risk his neck if he wants to. His period of usefulness has not been ended by wartime developments in the laboratories of the volume producers. ◆ ◆ ◆

# PISTOL PACKIN' TEXAN

THE RIDING CROP affected by quite a few British officers and adopted by some impressionable American officers or "dandy" generals was generally conceded to be the most useless affectation and most worthless bit of equipment in the American Army during World War II.

Next to the riding crop in uselessness, in the opinion of many members of the army, was the Table of Organization provision that certain soldiers, such as machine gunners and mortar men and officers of the grade of major and above, be issued the Colt .45 automatic pistol.

"What good is a pistol to a soldier in a fight?" the doubting Thomases asked. "You can't be accurate with the darned thing beyond fifty yards at the most, and if you can hit what you aim at within that distance you're doing good."

So thinking, a good many of the soldiers equipped with pistols traded them off in battle for carbines, tommy-guns, or even rifles. This meant carrying an extra load because only soldiers who had, as their basic job, something else to carry such as a mortar tube, were issued pistols. Most field officers of battalion grade took the trouble to arm themselves with a rifle or carbine when they left their command posts.

The general opinion was that wearing the pistol gave the onlooker the idea that the soldier was a fighting man while not being a bothersome burden. But for a fire-fight? Very few relied on the .45.

Probably the most remarkable feat of arms accomplished during World War II with the army pistol was that performed by Captain Lennis Jones, a Texas throwback to Davy Crockett in marksmanship and physical stamina.

Jones was a paratrooper in Italy until his regiment was disbanded to furnish replacements for infantry. He wound up commanding Company A of the Second Infantry Regiment of the Fifth Infantry Division when Patton's Third Army was eliminating the last of the "Bulge" in von Rundstedt's counteroffensive in 1944.

On January 7, 1945, the Fifth Division crossed the Sauer River and continued an attack into the Germans in the Hoscheiderdickt Hill mass in eastern Luxembourg.

The weather was cold and snow fell almost continually as Company A of the Second Regiment took a hill top known as Friedhof farm. The platoons pushed ahead but a German counterattack of platoon strength, about fifteen German troopers, cut into the company command post.

At the command post were Captain Jones, his first sergeant, and a wounded company gunner. A volley of bullets heralded the counterattack and the first sergeant was killed immediately. Jones dove for the nearest shallow foxhole as he saw through the woods and snow haze the group of Germans advancing toward him. His carbine lay about ten feet away from him, so he pulled out his .45 and coolly set to work in the small protection of the shallow foxhole which was slightly behind a tree between him and his attackers. The conditions weren't the same ideal conditions that had prevailed when he won his expert rating as a pistoleer. It was cold; the wind was blowing swirls of snow across the snowscape. Nevertheless, Jones continued to aim and squeeze. His first four shots killed or wounded four Germans, and the attackers took cover behind trees, out of respect for this surprising marksmanship and their own skins, and tried to infiltrate closer.

Bullets zipped past him but he bore a charmed life and a cool head. He squeezed off the remaining bullets in his clip and reloaded. Each of his shots seemed to find solid flesh but his attackers couldn't seem to find his range with their Schmeisser machine pistol shots.

He downed three or four more Germans and a lull in the firing came. Jones scrambled for his carbine, seized it and downed three more. The remaining Germans retreated.

Jones surveyed the damage he had done and found five dead Germans and six wounded ones. He was torn but unwounded. The only trouble was, as far as the record goes, no one took the trouble to see whether the five dead were dead from .45 caliber bullets or the .30 caliber of the carbine. However, as far as Jones was concerned, it was his pistol that did most of the work.

Oh, yes, Jones was given the Distinguished Service Cross for his epic feat.—BRUCE CAMPBELL. ◆ ◆ ◆

# SHOOTING the MUZZLE LOADERS

By DON COBLE

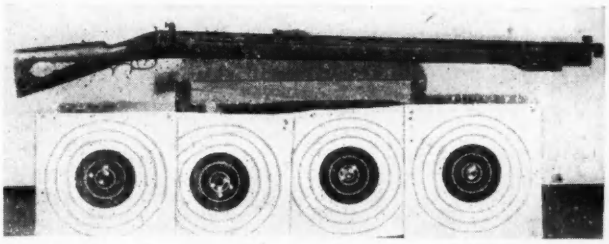
## CONCLUSION

HAVING REVIEWED THE TYPES OF RIFLES used in match shooting, it will be interesting to discuss the equipment necessary for the proper loading and cleaning of muzzle-loading target rifles.

Most shooters carry their ammunition and accessories in the metal boxes sold at sporting goods and hardware stores. Powder is more often carried in one-pound canisters than in powder horns, being easier to handle and requiring less packing space. Brass pouring spouts threaded to fit the screw tops of these cans are very useful to have in the tackle box. An adjustable powder measure with funnel attachment is also a "must" item. A sharp knife for trimming the patch, a nipple wrench, a screw driver, a light hammer, gun grease, flannel cleaning patches, a four-inch length of five-sixteenths-inch brass rod for driving sights in barrel slots, and a small piece of very fine steel wire for opening the small holes in nipples completes the equipment needed in the shooter's kit. Of course, there will also be ball starters for the different rifles used, and perhaps a starting rod for the larger calibers. Metal sight shades are needed to protect open sights from glare, and are used by most of the shooters.

Cleaning or loading rods are of straight-grain, seasoned hickory, at least six inches longer than the barrel of the rifle for which they are made. The end used to push the ball onto the powder is shaped to fit the curve of the ball, as the pressure from a flat end rod would tend to deform the soft lead. The opposite end of the rod has one or more grooves cut around it to prevent cleaning patches from slipping off in the bore.

Before proceeding to the actual loading operations, I might



**Author's 26½ pound, .53 caliber percussion rifle. Barrel was made by D. C. Addicks. The targets show 100 yard accuracy of this rifle with round ball**

add that a few extra nipples of the proper size for the rifle should be carried in the tool kit. The small hole at the base is gradually burned larger from continued use, and when it becomes too large there is a considerable escape of gas, which may scatter fragments of the copper percussion cap with sufficient force to penetrate the skin. A nipple of good steel should last for several hundred shots, often more. Also, this is a good time to recommend the use of shooting glasses. As is true in any other form of shooting, they are a valuable and inexpensive form of insurance.

If the shooter uses a flintlock, several new, sharp flints should be carried to the range in the event the one in use becomes broken or unserviceable.

The gunsmith who puts a muzzle-loading rifle barrel in shooting condition generally provides a mold of the proper caliber. Mr. Addicks told me that a round ball should not be small enough to drop freely into the bore unpatched, but should be of such a size that it requires several pounds pressure

**Pouring a charge for the Addicks rifle. Usual load is 100 to 110 grains of black powder and pure lead ball weighing 230 grains**

**Proper fit of round ball is shown here. Ball should be at least .001 inch larger than bore diameter for the finest accuracy**

**Ball and patch are forced into muzzle of rifle with ball starter. Excess patching material is then cut off and the ball seated**

**Starting rod is used to seat ball well into bore. Ball is then forced down onto powder charge with long loading rod**

to force it into the muzzle. It should distinctly show the marks of each land. This would make the ball on an average of .001 inch to .002 inch larger than bore diameter. Addicks cut the grooves of his own round ball barrels to a depth of .007, which he felt was right for this type of projectile. He also recommended the use of patching material of such a thickness that it would be compressed from .001 to .003 at the bottom of each groove. After years of constant experimenting and shooting with these round-ball, cloth-patch rifles, I am convinced that Addicks' rifling system was based on sound principles.

**A typical ammunition box for the muzzle loaders. With it is the author's favorite offhand rifle. Spread out before box are patching material, nipples, molds, caps, ball starters, etc.**

It has been my observation that a tightly patched round ball gives best accuracy, and is not given to erratic grouping, provided all other conditions are right. The explanation for this is that since a round ball does not give much surface bearing in the bore, it must fit snugly in its patch so that there is no chance of its riding over the lands instead of properly following the spiral of the rifling. To seat these tight-fitting balls a ball seater is necessary. This is made from a piece of hickory, such as the large end of a hammer handle, and should be four to five inches in length. At one end is a projecting stub about five-thirty-seconds inch in length, and about one-sixteenth inch smaller than the bore of the rifle. This is rounded to fit the curve of the ball.

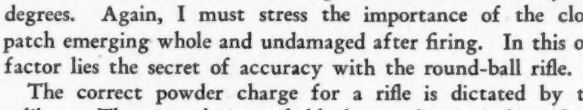
After the powder has been measured and poured into the barrel, the patching material is thoroughly moistened with the tongue and lips over an area corresponding to the diameter of a fired patch. This wet section of patch is laid over the bore and the ball set on it with its sprue up. This sprue is the flat area left after trimming the projecting stub of lead left after casting the balls. The rounded stub of the ball seater is then placed on the ball. Either a blow with the heel of the hand, or with a hammer, will seat the ball one-sixteenth of an inch below the muzzle. The patching is then gathered tightly, and cut cleanly with a sharp knife. Very few target shooters use ready-cut patches, but prefer to use them as they are needed from a strip of cloth. This conserves material, and the patches are also easier to cut after seating the ball.

A starting rod, which is then used to force the ball about six inches down the bore, is made with a knob at one end, and at the other end, where it fits over the ball, it is shaped in the same manner as the ball seater. These starting rods are convenient in loading large-caliber rifles, and are used by nearly all shooters. After the ball has been forced this distance down the bore, it is much more easily seated on the powder charge, and the danger of loading rod breakage is lessened. The ball must be seated on the powder with uniform pressure for each loading, and must never be hammered or tamped. This causes varied breech pressures and consequent loss of accuracy.

Patching material varies with different rifles, depending on groove depth and caliber. The cloth should be new, of very tight weave, and uniform in thickness. It should be washed in soap and water before using, to remove the starch or sizing often found in textile materials. Linen at one time was considered the very best for patching, but its expense and scarcity makes cotton cloth quite practical. For rifles with very shallow grooves, muslin sheeting is right, while for rifles of large calibers with deep grooves, bed-ticking or pocket drill is required.

In building up the proper load for a rifle, the shooter generally must experiment with several thicknesses of cloth before he finds one giving best results. The saliva on the patch softens the fibers so that they compress to an extent that tearing does not occur in loading. The saliva also provides a lubricant for the patch, and permits it to be easily pushed through the barrel length during loading. Another important function of the cloth patch is to seal off all powder gas leaks from the instant of explosion until the ball emerges in its patch from the muzzle.

If a rifle shoots erratically, the experienced shooter will watch for the fired patch and examine it. If there are gas burns through the grooves, he will know that either a thicker patch or a larger ball is needed. If the patch is torn or abraded on the land surface, he will know that he has too thick a patch, or that the ball is oversize. Sometimes, with a



newly rifled barrel, the trouble lies in too sharp an angle in the bevel at the muzzle. This angle should be about forty-five degrees. Again, I must stress the importance of the cloth patch emerging whole and undamaged after firing. In this one factor lies the secret of accuracy with the round-ball rifle.

The correct powder charge for a rifle is dictated by the caliber. The granulation of black powder is indicated by FFFG for the very finest to FG for the coarsest. It is the usual practice to use FFFG in calibers up to .45, and FFG in calibers up to .55. FG is not commonly used because of its

coarseness of grain and the difficulty of ignition in a rifle which has built up some fouling in the breech.

There is no set rule for the powder charge of any given caliber, but these may be considered average figures for round ball rifles:

| | | | |
|---|---|---|---|
| .32 to .34 caliber, | 25 to | 30 | grains of FFFG |
| .34 to .38 caliber, | 30 to | 40 | grains of FFFG |
| .38 to .42 caliber, | 40 to | 50 | grains of FFFG |
| .42 to .45 caliber, | 50 to | 65 | grains of FFFG |
| .45 to .47 caliber, | 65 to | 75 | grains of FFG |
| .47 to .50 caliber, | 75 to | 85 | grains of FFG |
| .50 to .53 caliber, | 85 to | 100 | grains of FFG |
| .53 to .55 caliber, | 100 to | 115 | grains of FFG |

Attempting to experiment with elongated bullets in round-ball rifles ahead of such heavy powder charges will create such high pressures that there will be possibilities of blown-out nipples, cylinders, or, worse still, breech plugs. Before a muzzle-loading rifle is fired it should have been inspected by a gunsmith who understands these firearms.

Round-ball molds should be of sufficiently heavy weight that they will retain heat properly during casting operations, and it is convenient to have them equipped with a sprue cutter. If they are not fitted with this feature, the sprues should be cut off uniformly with a sharp pair of pincers, ground flat so that there is no bevel next to the ball.

The purest lead possible should be used for round-ball casting, and the molds should be held level during the time the lead is poured from the dipper. If the molds are hot enough, and the lead kept at a constant temperature, there should be no difficulty in securing balls free from imperfections.

Whether a round-ball rifle needs cleaning after every shot depends on the condition of the bore, and the material of which the barrel is made. Iron seems to require cleaning more often than steel. It seems to be the best policy to clean after each shot, using first a damp patch and then a dry one. This will keep the bore free of fouling and prevent an accumulation of carbon from building up in the powder chamber. A badly fouled barrel will cause patches to tear, and result in wild shooting.

After a few hundred shots, it is a good policy to dismount the barrel from the stock, remove the cylinder and breech plug, and clean out the fouling that has collected at the base of the powder chamber and in the cylinder passage. ♦ ♦ ♦

## *Production Prospects*

(*Continued from page 9*)

kind of trouble with any Mossberg product, even if it is his own fault or is, perhaps, due to his own dumbness they just say, well this chap hasn't too much money after all so we'll make it good for him at the very least possible expense, or even at times, "for free," even if we do seem to lose a little money by it. Of course, the answer is obvious. Each one of these cases costs Mossberg a few dollars, but gains a loyal customer. In the end they make, rather than lose, by their liberal and sympathetic policy.

As to the prospects for 1947, vice-president Walter Pierson told THE RIFLEMAN's representative:

"Our facilities are again being utilized 100 per cent in the production of sporting firearms and telescopes. We are making our complete line of .22 caliber rifles, which includes two styles of bolt-action clip repeater, two styles of bolt-action tubular repeater and one tubular magazine automatic rifle. In shotguns we are producing 20 gauge and 410 bolt-action repeaters. We are also producing our 20 power spotting scope and stand. Rifle scopes will be made again when lenses are available."

## SAVAGE-STEVENS

The Savage Arms Corporation and their J. Stevens Arms Company Division have recently consolidated the manufacture of all Savage-Stevens arms at the Chicopee Falls (Massachusetts) plant. Savage has been engaged in moving their arms production from Utica to Chicopee Falls, and this has naturally interfered with production, but the Stevens' crowd have been making hay while the sun shines, and have really turned out guns. There used to be an old saying among gun users that there never was a Stevens barrel that wouldn't shoot. That still seems a pretty true statement.

Mr. G. N. Davidson, general manager, was optimistic about the production prospects for both Savage and Stevens guns. He believes that full production will be maintained during the coming year if the material situation does not limit the output.

## ITHACA

The Ithaca Company apparently is achieving a good volume of production in their Ithaca, New York, plant. Major Sheldon M. Smith summed up Ithaca prospects:

"We are turning out more guns at this time than we did before the war, but we cannot seem to catch up with the excessive demand. The gun on which we are still concentrating is the Ithaca Model 37 Featherlight Repeater in 12, 16, and 20 gauges.

"Our production as originally scheduled has been thrown off a full six months, possibly a year, owing to the various strikes affecting our sources of material. We have been able to keep the Model 37 Featherlight Repeater rolling but have been held up on all the rest of them."

☆ ☆ ☆

There are a lot of smart designers in the gun and ammunition business, and they have been far from idle during the past few months. NRA staff men have seen a number of interesting new designs, both on the drawing boards and in the model rooms. However, most companies are giving first priority to filling as many as possible of the backlog of orders now on the books. It probably will be some time before any of the new models are ready for the public.—J. S. H. ♦ ♦ ♦

# Go Hunting? NEVER!

GO HUNTING? Never. I'll do all of my shooting on the range, thank you.

Don't call me a belly-flopping fixed-range shooter who doesn't want to rip his pants crawling through the brush like the he-men hunters. I like to get out in the woods as well as the next guy—but not during the hunting season. But on the range I can use all of the trick targets I want and do just as much shooting, WITHOUT THE DANGER.

The average man on the range is a pretty sensible guy. The average man in the woods is a dangerous maniac. The average man on the range knows how to handle his gun and he knows

**INCIDENTS LIKE THESE MAY NOT BE TYPICAL . . . BUT THEY DO HAPPEN AMONG OUR "SPORTSMEN"**

where it shoots. He knows where not to point it because he knows that when handled wrongly a gun can be a very dangerous thing. The average guy in the woods doesn't know any of these.

Last fall a couple of friends invited me dove hunting. They are pretty nice guys, both lawyers and respected men in the community, both reputedly intelligent. I attempted to reject their invitation. I offered a dozen excuses. But for a long time they had been after me to go hunting with them. I heard the old remarks about the impotency of a target shooter in the fields which, I imagine, any target shooter has heard from the red-blooded field-and-stream guys. Their comments finally became so caustic that I rashly agreed to go. I shoulda stood in bed.

Pete and Art, my legal beagles, called for me one Sunday. Art's wife and father were with them. The little woman wanted to shoot a dove. Pete knew a field that had never been hunted. It was saturated with doves, he said. We drove through the orange groves for miles until we came to a ten-acre square surrounded by more orange groves. The whole field was grown up in weeds about seven feet high.

The nimrods pulled enough guns and shells out of the trunk of their car to start a decent revolution. Art's wife was equipped with a 20 gauge pump gun. The other men carried 12 gauge automatics and I was outfitted with a 12 gauge double barrel. The first thing everyone did was load his gun. We were only standing by the car discussing the plan of attack, but the guns had to be loaded.

Art had his gun under his arm and decided he needed a last cigarette before starting his stalk. In lighting his fag the muzzle of his automatic swung up and stared me right in the eye. I ducked behind the car pronto —that was a hard look it gave me. The others were equally nonchalant, waving their guns to illustrate what they were saying. I wished that I were home in bed.

Our strategy decided, we set out down a dirt trail. I walked in the rear and the others immediately swung their guns over their shoulders. I found myself facing a whole group of one-eyed monsters, each dying to spit a load of No. 7½ shot in my face. I joined the group in a hurry. Immediately every gun in the group swung in unison to face me as if operated by a control center. Dancing around that group trying to get from under those muzzles, I must have looked like someone's pet pup.

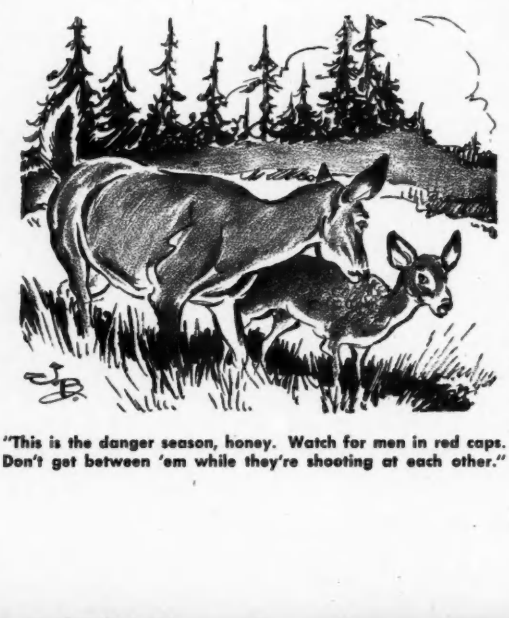
At the corner of the field we separated. Art's wife was sent around the square to sit under a tree on the far side. Art's daddy was to circle the field to the left; I was to circle to the right; he and Pete were to go through the middle. The theory was we were to move in a straight line across the field, picking up the millions of doves supposed to be in the weeds.

Two minutes after we separated I couldn't see a soul. I moved along my path wondering whether I was ahead or behind the line. I didn't like the idea of a bunch of people with loaded guns wandering around where I couldn't see them. Suddenly a gun boomed in the weeds. I didn't see a bird fly. I did hear a charge of birdshot swish through an orange tree behind me. That was enough. I went off in the grove, found a good tangerine tree, sat down in its shade, and spent a pleasant time eating big juicy tangerines. Occasionally I heard gunfire and another charge of shot would spatter in a nearby tree, but all in all I spent an enjoyable hunt under my tree.

When I heard the others shouting I gathered that the hunt was over and returned to the car. We took stock. The score was: One dove, some very good tangerines (contributed by me), and lots of scarce ammunition expended. I hadn't fired a shot.

As a concession to the game laws, they decided to unload the guns before entering the car. Here, my friends, is the crowning incident of the day. Art's wife was leaning against the car smoking a cigarette. Not five feet from her, Art stood with her 20 gauge pump gun and, with the muzzle of that gun pointed directly at her midsection, pumped five loaded shells from it. I fainted dead away. Maybe I ain't rugged like the true hunter but the thought of what would happen if the hammer accidentally fell while he was pumping the shells out of that gun floored me. He loves his wife, too.

So, you see why I prefer a nice safe rifle range. If a man acted like my hunting companions on our range, someone would bend the barrel of a bull gun over his head, and we'd feed him to the buzzards. So, each Sunday morning, while ambulances clang by to pick up some red-blooded hunter you'll find me happily punching holes in a paper target—or home in bed. ♦ ♦ ♦



**"This is the danger season, honey. Watch for men in red caps. Don't get between 'em while they're shooting at each other."**

# The Old Coach

## THAT OLD OFFHAND

EVEN THOUGH THE SHOOTING GAME is getting well along in years, probably the most talked about phase today is the offhand or standing position. At the same time it is without doubt the most generally ignored in most rifle clubs.

There are many theories regarding the offhand position. How you boil them down is an individual matter. A new shooter should try all the accepted positions, and see which one gives him the best scores. After that, he might work out some variations that might include another accepted position or two, and combine them with the position he has decided to use. There are many shooters who use a combination of positions wrapped into one, with an idea or two of their own.

After experimenting for two years I have adopted a position that is a combination of two recognized standing positions, with an idea of my own. It is with the idea that this position might be of help to some of you shooters, and will encourage some of you who wince at the very thought of shooting a string of ten shots standing, that I am putting it in writing as this month's "lesson."

When it comes to guns for the offhand or standing position, my preference is for a rifle of about eight pounds. Contrary to the numerous articles I have read, there is nothing like the largest front aperture sight, *not* the bead or post front sight. (Most of you outdoor shooters use this type of sight, so it will not be something new.)

Some positions favor the hip rest for the left elbow, but I have found from experience that this is more of a hindrance than an asset. Bear in mind that only prolonged patience and time will bring about any signs of the gun and yourself getting together, so you will be even a trifle steady!

Let's start from the beginning. Remember, the sling is at parade position, tight against the stock, or else no sling on the rifle at all. Slings only bother the shooter in offhand shooting —they never help. The first step is to place a chair on the firing line. This is important. To retain one's calmness and to ease all body strain, a rest between each shot in the chair, completely relaxed, will do wonders for the scores. Second, stand at a fifty degree angle to the target, with both feet spaced apart until the body is evenly balanced and there is no strain on either leg, or on either side of the body. The distance in the spacing of the feet will vary according to the height, but between twelve and fourteen inches is the average. Third is the balance of the rifle. Most theories are that the left hand should be placed on the upper part of the stock only *after* the barrel of the rifle becomes slightly muzzle heavy. I believe that the rifle should be perfectly balanced in the palm of the left hand, and that the grip should be made five inches *behind* the upper sling swivel, with the rifle resting between the thumb and index finger, held lightly, with the remaining fingers touching the barrel gently. Fourth, after placing the rifle in the above manner, place the left elbow directly *underneath* the barrel, to assure the maximum of support. The elbow should be away from the body. Fifth, take the right hand and place it on the grip of the stock, with the index finger inside and against the trigger guard.

Sixth, raise the muzzle of the rifle *above* the target, take a good breath, let some out and put your tongue against the roof of your mouth. Hold the remainder of that breath. As you come *downward* with the muzzle (this seems to be the best way in offhand shooting), pull back with the right hand until the butt plate is snug against the right shoulder, take up the trigger slack, and be sure that the right elbow is at least parallel and is the same height as the right shoulder. This makes a comfortable pocket for the rifle butt to rest in. Pulling the butt plate snug against the shoulder makes the gun feel as if the right arm is sharing part of that eight pounds of dead weight from the left arm. It is purely psychological, but it works! The muzzle is now on the target and the trigger squeeze can start. You will find that the muzzle doesn't weave from left to right, or vice versa, but will move up and down for a few seconds, then will be on the target steady enough for you to squeeze the shot off. Eight, follow through, just as in any other position.

It is only natural that for a long time you will be unsteady. All the patience and calmness in the world is needed. There will be miss after miss. The left arm, not being accustomed to supporting a rifle, has to build up muscles that can stand the strain and weight. The more snug the butt plate is against the shoulder, the more the steadiness of the rifle.

When the position has been learned, one of the secrets of getting good scores in this position is a rapid trigger squeeze. Too many shooters use the same slow squeeze that is used in prone shooting. You must remember that the average person can only stand up and hold a rifle steady for about twelve seconds. After this, the left arm tires, the gun becomes wobbly, and the heart begins to beat faster. There is a certain rhythm to be used in the standing or offhand position, just as in any other. The muzzle is brought down, the trigger slack is taken up, the butt plate is snug against the shoulder, the up-and-down movement of the muzzle, the sight picture, the steadiness of the muzzle, the correct sight picture, and the trigger is off! Don't become confused with what is known as a jerk! There is a vast difference between a fast trigger squeeze and a jerk.

This position is the hardest of all to master, even to the best of shooters. Particular attention to the co-ordination of the left arm, right arm, breathing, trigger squeeze, relaxation of the whole body and perfect balancing of the weight have to be worked out before good results can be achieved.

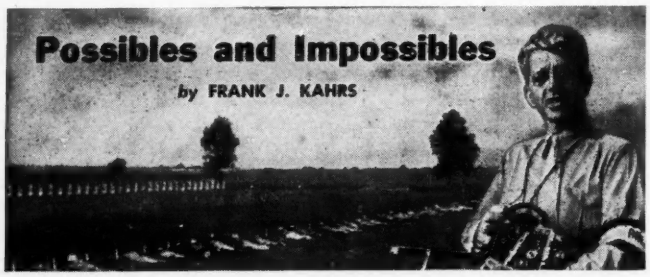
One thing to remember is that a good offhand target is worth several below average targets. Don't throw a miss because you are tired and should have used the chair after that last shot. When you get tired, sit down, relax, take a few good, deep breaths, and start all over again. Taking one's time is the essence of good shooting.

Try this method. Maybe it will work, maybe not. Nothing has been lost. You will have had the satisfaction of trying out one more theory, and perhaps between all of them you will be able to work out one that is suitable to yourself. Then you will be in the ranks of those who will be clamoring for matches that feature position shooting, especially that of standing or offhand. Good shooting! ♦ ♦ ♦

A PAPER FOR PEOPLE WHO SHOOT

# Rifle

VOL. 10, NO. 1 BRIDGEPO JANU



## Possibles and Impossibles

by FRANK J. KAHRS

While attending the Small Bore Championships at Dallas last spring we ran across a rather interesting happening one day at the range just out of town. Our attention had been called to a chap who was sighting in a Remington M/513T target rifle. Our informant told us that this man had purchased the rifle the day before in Chicago. While we were trying to figure out how this man could get himself a rifle from Chicago to Dallas so quickly, we decided to stroll over and find out some more about it.

It didn't take us long to figure it out when he told us he was a pilot for an airline company flying regularly between Chicago and Dallas, and that he had purchased the arm in Chicago, and had taken off at 3 o'clock in the morning of the next day, which is the day we are talking about. We helped him get sighted in and that was no difficult matter because he just sat down and did exactly what we told him in the matter of coming up four clicks and to the left four clicks and there he stayed.

However, the story wouldn't be complete without our telling you that he stood up suddenly and announced that he was going to shoot offhand and he continued to put 10's in there until he decided he was sighted in. We then asked him why he shot standing and he told us he was a squirrel shooter and you never shoot the squirrels prone, always using the offhand position.

Judging by the way he slapped that 10-ring down, we are inclined to believe that he would bring down plenty of squirrels. We didn't ask him whether he shot them in the eye or in the head. You'll have to figure that out for yourself, but, anyhow, it makes an interesting story.

* * *

As an indication that the small bore shooter has lost none of his skill during the war years' layoff, I would like to mention that in the Pennsylvania State Championships at Harrisburg last September, in one match a 400 with 24 X's was good for 54th place. In other words, there were fifty-four 400's or possible scores in these matches! And 65% of these were made with either Remington or Peters "match" ammunition, which is to my mind an indication that "match" ammunition accuracy has held its own.

Just between us, it is my opinion also that generally speaking "match" ammunition is of a higher grade than ever and this is, of course, particularly true of the kind that is made by Remington and Peters. You know what I mean, the "Palma Kleanbore," for instance, and "Targetmaster" by Remington and "Dewar Match" and "Police Match" by Peters.

Lot of the boys keep asking me the difference between these various brands. "Targetmaster" and "Police Match" are essentially pistol cartridges, but it so happens that they have given "Palma Kleanbore" and "Dewar Match" a close race for supremacy. As a matter of fact, "Targetmaster" is my favorite cartridge, but I have seen some mighty fine groups and scores made with "Palma Kleanbore" and "Dewar Match."

* * *

From time to time I have mentioned the Boys' Club of Wilmington, Delaware, and the enthusiasm displayed by all concerned in the sport of rifle shooting. During the 1946 camp season, 201 boys took part in the program and of this number 80 of the boys completed one or more qualifications and 32 partially completed the course with a total of 112, so 112 boys really completed qualifying targets and that certainly shows a high percentage of boys shooting.

The ages of the boys range from 9 to 17 and they were in camp about two weeks. A total of 25,000 rounds of ammunition was used and they had 14 rifles. The reason for all of this interest and activity is due, of course, to the instructor and his assistant.

GIRLS' A
STIM

HAVE YOU TRIED REMINGTON "PALMA
BORE" AND "POLICE TARGETMASTER"

You can tell the difference when you shoot the new Remington Targetmaster or Palma Kleanbore match ammunition. It's better than good. It's *hot!*

In recent big matches from coast to coast . . Camp Perry . . winners have been ington 22 match And they're sticking

"OFF-HAND"* . . . . . by Einar V.

* Thanks, Milwaukee! The original of this cartoon, a large water-c by Einar V. Quist, *Milwaukee Journal*, was given as a prize in match by a local rifle and pistol club.

Rifton News

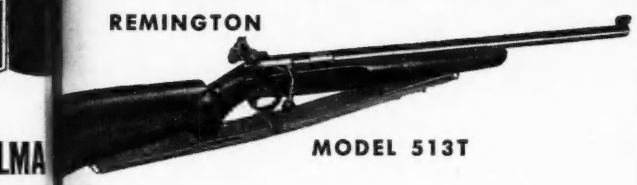
WEATHER:
COLD AND ICY . . . IDEAL FOR
INDOOR SHOOTING

GEPO JANUARY, 1947 — First Class Reading Matter for Rifle Shooters

# D BOYS' TEAMS
# ATE LOCAL CLUBS

*he ideal 22 target rifle for*
*ew shooters . . . new clubs!*

REMINGTON



MODEL 513T

The Remington Model 513T
high-grade 9-pound target
that meets every require-
t for match shooting in all
tions. And it's moderately
ed. See some of these fea-
s . . . and you'll see the
on for its splendid reputa-

**ADJUSTABLE FRONT SLING SWIVEL**

to fit long- and short-armed shooters — gives ideal sling tension.

**REDFIELD FRONT SIGHT**

has seven interchangeable discs for all preferences and conditions.

**DETACHABLE MAGAZINE BOX**

holds six cartridges, which, with one in chamber, gives seven-shot capacity.

REDFIELD
EAR SIGHT

icrometer type
quarter-minute
tments for
e and eleva-

**NEW REMINGTON BOLT**

has double extractors, double locking lugs and double cams for easy cocking.

**SMOOTH, EASY ACTION**

has new-type bolt handle; smooth, crisp trigger pull; anti-backlash trigger stop; short, fast firing pin travel. Positive side lever type thumb safety. Red firing indicator shows when rifle is cocked.

## FUTURE OF RIFLE SHOOTING DEPENDS UPON INTEREST OF YOUNGER GENERATION

MIDDLETOWN, U. S. A., January, 1947. It's the young folks who mold the future of any sport—and it's youth you must count on to perpetuate organized rifle and pistol shooting.

There are several ways that clubs can promote junior rifle shooting, thus assuring the growth and permanence of their organizations. Some clubs have formed junior club teams that compete in local matches. Others have offered the use of their range facilities to public high school teams, Boy Scouts, the Y.M.C.A. and boys' clubs.

"Take a boy shooting today," has become the motto of members of some clubs. Knowing the enjoyment and pleasure of shooting regularly at a rifle and pistol club, these men are giving boys an opportunity to learn to shoot by inviting them to their ranges, where they teach the boys what they know about handling a rifle, safety, scoring, and club organization. Boys who show promise often become leaders who get junior teams started.

Many clubs also are encouraging girls to shoot. Experience shows that girls make good rifle and pistol shots, and shoot well enough to provide hot competition in matches.

Don't let your club forget that the juniors of today are the backbone of rifle shooting tomorrow.

Targetmaster, Palma, and Kleanbore are Reg. U.S. Pat. Off. by Remington Arms Company, Inc., Bridgeport 2, Conn.

# POWDER SMOKE: THE NEWS DESK . . . READERS COMMENTS

## MEETING OF NRA DIRECTORS

The Annual Business Meeting of the Board of Directors of the National Rifle Association will be held on Friday, February 7, 1947, as provided in the by-laws of the Association. The purpose of this meeting is the election of officers for the ensuing year, and the consideration of such other business as may properly come before the board.

A meeting of the Executive Committee will be held at 10 A.M., February 8.

## COLT'S AND SMITH & WESSON HAVE NEW PRESIDENTS

The only two firearms manufacturers in America which produce complete lines of handguns in all American calibers and in a variety of models are Smith and Wesson, and Colt's Patent Fire Arms Mfg. Co. Both firms have recently elected new Presidents.

Mr. Carl R. Hellstrom, who succeeds the late Harold Wesson as President of Smith and Wesson, is the first holder of that office in nearly a hundred years not a member of the Wesson family. Mr. Hellstrom has been associated with Smith and Wesson since 1931, first as engineer consultant, then as general superintendent, works manager, and vice president.

Mr. Graham H. Anthony has been a Director of Colt's since 1936. In 1944 he was elected President, coming to Colt's from the presidency of Veeder-Root, Inc., manufacturers of mechanical counting devices. During the war Mr. Anthony was for two years an industry member of the National War Labor Board and later a member of No. 1 Regional War Labor Board.

**Mr. Graham H. Anthony, President of Colt's Fire Arms Mfg. Co. since 1944, has been a Director of that firm since 1936**

## LET'S GO SOUTH

Hey, pistol shooter! Need an excuse for a trip to Florida? Pack your shooting kit, hold your hat on through the cold gusty winds of this month and next, and keep the week around March 6, 7, 8, 9 open. These are the dates of the National Mid-Winter Pistol Matches.

Impresario C. A. "Smitty" Brown has scheduled some bang-up pistol matches, planned fish

**Mr. Carl R. Hellstrom is the newly elected President of Smith and Wesson**

fries, barbecues, banquets, and arranged a gala dance and party for the last evening of the tournament. He's even planned sight-seeing and entertainment tours for the nonshooting members of the families of pistol shooters.

Hotels, through the Tourist and Convention Bureau, have guaranteed reservations for shooters at not more than 10 per cent increase over the '42 rates. Merchants and businessmen have contributed prizes of watches, traveling bags, guns, etc.

Entries for the National Mid-Winter will close on February 28. Full details on housing, meals, and the match program can be obtained from National Mid-Winter Pistol Matches, Post Office Box 253, Tampa, Florida.

Incidentally, if you'll have a few extra days handy, brush up on your Spanish. Among the South and Central American shooters present will be a Cuban delegation, which is trying to arrange free round-trip transportation to the Pan-American Pistol Matches to be held in Havana, Cuba, shortly after the Tampa shoot.

## NEW RECORDS

A new gallery record and a new woman's outdoor record were established in rifle matches during the past two months.

In Glendale, California, Mrs. Gladys D. Rising of Compton, Calif., scored 400-31x over the any-sight 50-meter course to surpass Mrs. May E. Kell's 400-29x which has stood over five years. This record was set in the Tenth Annual Southern California Small-bore Tournament, November 16.

A new metallic sight, five shots in each of four positions, record of 195 was scored by Arthur Jackson of Brooklyn, N. Y., on December 1. Firing in the Long Island Gallery Rifle Championship matches in Brooklyn, Jackson broke the record of 194 held previously by George Meyrowitz of Mt. Vernon, N. Y.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### Field Representatives

Southwestern ..... Ray Whitaker, 310 Tuloma Bldg., Tulsa, Oklahoma
Midwestern ..... Dow Smith, Orpheum Theatre Bldg., Elkhart, Indiana
Southeastern ..... Fred Molt, P. O. Box 965, 125½ College St., Asheville, N. C.
Washington Metropolitan ..... C. L. Floyd, 1600 Rhode Island Ave., N. W., Washington, D. C.
Far Southwestern ..... Lee Echols, % C. G. Echols, 505 1st Street, Calexico, Calif.
Northeastern ..... E. F. Bridgman, 76 Pomona Street, Springfield, Mass.

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## SHOOTING TELECAST

On October 16, 1946, the Philadelphia Marksman League sponsored one of the first sporting reviews ever televised over WPTZ, the Philco television station in Philadelphia, which relayed the program to New York for rebroadcast.

Bill Applegate of the Philadelphia Police Instruction School stressed the value of marksmanship to police: to protect human life, to hit what you aim at, to prevent sacrificing innocent bystanders. After speaking, Applegate fired a rapid-fire string with his regulation .38 caliber pistol into a bullet trap.

Jack Folk of the Flourtown Sportsmans Association followed Applegate and explained the different guns used in target shooting, trigger squeeze, sight alignment. Then Folk fired ten shots offhand at fifty feet for a score of 97 x 100.

Eva Sutch, Secretary to the Nesters Rifle Club of Norristown, Pa., shot the standard-barrel rifle prone at fifty feet, and explained to the audience the attraction of target shooting as a sport for women.

**Scene during the televising of a program on rifle and pistol marksmanship over station WPTZ Philadelphia. This program, sponsored by the Philadelphia Marksman League, stressed the practical and recreational value of shooting**

## NEW ELIGIBILITY RULE

More and more frequently registered tournaments are scheduling events open only to residents of a specified area. Heretofore a "residence rule" has not been a part of NRA Shooting Rules, but within the past year a number of incidents have arisen which required interpretation of what constitutes a resident. The NRA Executive Committee adopted a residence rule at its last meeting on November 13, 1946, to become effective immediately in all matches fired according to NRA Shooting Rules. This becomes rule 2-20 in the current rifle and pistol rulebooks. Rule 2-20 reads:

**Residence**—In those matches which are limited to residents of any specified geographical area, a "resident" is defined as—

(a) A person whose place of permanent residence has been within the specified area for at least sixty days immediately prior to the date of the match, whether or not his (or her) employment is at a place requiring him (or her) to commute or travel into some other area.

(b) A person who has been regularly employed within the specified area for at least sixty days immediately prior to the date of the match and who has maintained residence in that area for the same period of time, although his permanent residence is located outside the specified area.

(c) Military and Naval Personnel. The place of residence of members of the military and naval establishments on active duty is defined as the place at which they are stationed by reason of proper orders from higher authority, provided they have been so stationed within the specified areas for a period of at least sixty days immediately prior to the firing of the match. In the case of retired, reserve or National Guard personnel not on active duty, the provisions of paragraphs (a) and (b) will apply.

(d) Federal and State Law Enforcement Officers. The provisions of paragraph (c) will apply.

(e) A competitor may not compete as a resident of more than one area in *competitions of the same type* during any calendar year.

**Note:** *Types of competition* are: High-power rifle; Outdoor small-bore rifle; Gallery rifle; Outdoor pistol; Gallery pistol.

## TWO NEW NRA FIELD MEN

On the first of the year two pistol shooters, Lee Echols and Ed Bridgman, take up duties as NRA Field Representatives.

Echols, former Customs Agent with the U. S. Border Patrol, author of numerous RIFLEMAN articles, and winner of the National Individual Pistol Trophy at the '41 National Matches, is the Far Southwestern representative of the NRA. Planning to locate in San Diego, California, Echols has found neither living nor working quarters available. Until settled, his address will be: % C. G. Echols, 505 1st Street, Calexico, Calif.

The Northeastern field representative is E. F. (Ed) Bridgman, one-time official of the USRA, former NRA Director and Official Referee. Long a familiar figure at matches in the New England states, Bridgman is also without an office at present but may be reached at 76 Pomona St., Springfield, Mass.

The addition of these two men to the NRA Staff brings the number of NRA Field Representatives to six. These Field Representatives officiate at tournaments, aid in the organization of new clubs, counsel existing clubs on their problems, and in general bring the NRA to the shooter in the field.

## STOLEN GUNS

One Model 19 Savage #60787 and 330 Weaver scope. Ward Grabill, Kenton Drive, Route 4, Rockville, Maryland.

One .38 caliber Colt Police Model #571057, with S&W target sight. F. C. Fowler, 5325 Dupont Avenue South, Minneapolis, Minn.

Pair of flintlock pistols marked "Bate-London" on barrel and "Bate" on lockplate. Barrel is half-octagonal with slight flare at muzzle, about .50 caliber. Blurred Birmingham proofmarks. One pistol has braze on hammer and other has break through wood under escutcheon plate. Notify John W. Jenkins, State Historical Society, 816 State Street, Madison, Wisconsin.

Twenty-five dollars reward for return of .270 caliber rifle on Springfield action #1422090, with 22-inch barrel and Johnson muzzle brake. Wallace M. Braithwait, P. O. Box 158, Pe Ell, Wash.

Walther .22 cal. military training rifle, same size and appearance as Mauser Army rifle, front piece of stock of different wood than rest. Knickerbocker 12 gauge shotgun #101449. Ansley Fox rifle, engraved breech, #22208. Notify Chief Bridge Brookhaven, Patchogue, N. Y.

.38 caliber Colt Detective Special #453283, Meyers tooled-leather holster. Stolen or lost in Jefferson City, Mo., or enroute Montgomery, Ala. Paul H. Sommers, 1 Hubbard St., Montgomery, Ala.

Colt Officer's Model .22 caliber pistol, #24937. Stolen from St. Paul's School Rifle and Pistol Club, St. Paul's School, Concord, N. H.

## LIMITED DCM SALES RESUMED

Starting January 10, 1947, the Director of Civilian Marksmanship will again approve National Rifle Association members' purchase requests for the .30 caliber United States rifle M1903-A1 (reconditioned Springfield), the .30 caliber United States rifle M1903-A3 (stamped parts, wing type receiver sight), and also accessories, appendages, and spare parts, including barrels for both Springfield and Enfield rifles. Sales of M2 .30 caliber rifle, .38 caliber revolver (full charge, round nose), and .45 caliber pistol ammunition will also be resumed. Military targets, cleaning and preserving materials go back on the sales list on January 10.

Still tied up are .22 caliber ammunition and 1917 Enfield rifles. Safety studies are being conducted by Ordnance before placing the remainder of Enfields on the market. .22 caliber ammunition is just plain scarce.

Don't forget your NRA membership card when ordering any item through the DCM.

## GALLERY CLASSIFICATION

During the 1945-1946 gallery season, only a few registered rifle tournaments were conducted. The war had so recently ended that tournament sponsors were not ready to hold matches—ranges were unopened after wartime closing; ammunition and rifles were scarce; and many shooters were still in the service. Since few gallery tournaments were held, only about 250 competitors fired in sufficient competition to be classified. This number is too limited to base a season's classified competition on, and, therefore, no 1946-1947 Gallery Rifle Classification Book will be published.

Tournament sponsors not having average gallery scores for expected shooters and wishing to classify competitors may well use the current Outdoor Rifle Classification Book to establish a competitor's class. Many shooters will have the same classification in both outdoor and gallery shooting.

## CHALLENGES

The Oneida Rifle Club, Oneida, New York, desires postal matches with other clubs: 50 feet, NRA rules, 10 shots in each of 4 positions, any sights, 10 men to shoot with 5 high to count, scores only exchanged. Write: Oneida Rifle Club, % George R. Story, Jr., Secretary, Box 95, Vernon, New York.

The Sycamore Rifle and Pistol Club, Sycamore, Illinois, would appreciate postal matches with other clubs; 5 shot, 4 position matches. Write: Florence Hove, Secretary, Sycamore Rifle and Pistol Club, Sycamore, Illinois.

The University of Wisconsin is having difficulty in finding universities and colleges with men's pistol teams and women's rifle teams with which to schedule matches. Any school or university having such a team, please contact Captain Ellis Lea, Coach of shooting teams, at the University of Wisconsin for any date from January 11 to April 29.

The Prince George's Gun Club would like to fire three-position postal matches with other NRA clubs. Ten men to fire on team; five high scores to count. Write "Uncle Carl" Blanchard, 5604-43rd Ave., Hyattsville, Md.

# RICOCHETS

## PISTOL SIGHTS

Chicago, Illinois.

Editor:

I suspect Pistolman Roper of affecting a rhetorical play when he asked someone to explain why the Patridge front sight could be seen full width through a notch .07" wide in "A Study of Handgun Sights," the October issue.

Why it could be seen thus is obvious, although my theory may be wrong. Opposite sides of the eye pupil admit rays from opposite edges of the post. The place of intersecting rays lies at some intermediate distance, instead of at the eye where it would be if the diameter of the pupil were infinitesimal as Roper's geometry assumes. Actually the diameter is finite, and so different parts of the eye see different parts of the object resulting in an angle of vision wider than the theoretical.

In this respect my eye is so good that I can sometimes achieve the cockeyed feat, so to speak, of "seeing around the corner" when the bull is overlapped—and incidentally get a wide nine or even an eight on what looks like a perfect sight picture.

When illusions such as these occur the bull or front sight appears gray, not black.

J. M. Grigg.

## GUILTY?

Seattle, Washington.

Editor:

I liked the way "One Man's Meat," by F. W. Rinkenberger, ended. "I have presented my case. The verdict is up to jury."

F. W. R. needs no jury. His own words carry the verdict—"guilty."

The little item that would get him a *one*-word verdict, was about that big, almost pure-white grizzly. He says, "If that bear had been hit by a 220 grain slug out of my .300 Magnum, his pelt would be on my floor now." That was a gut shot he was talking about. Now that wouldn't have been so sour if he had not said, on the very next page, that he had to pump *four* 220 grain slugs into a goat. I know that a grizzly is just as hard to stop as a goat. And he didn't say whether or not he killed the goat.

Mr. Rinkenberger pulled a beautiful shot on that doe: 200 yards, running uphill. One shot; one deer. Good work.

Again in Wyoming, in '39 Mr. F. W. shot a sheep at "better than 500 yards." The bullet entered the right eye. Nice shot. Although if one can't get any closer than 500 yards, he does not improve his name as a hunter.

Now those were two right-pert shots, but then—he shoots a bear at 75 yards, through the *shoulders*, though he slams one into the back of his skull as he was *rolling by*. He shoots a big bull caribou at *50* yards, through the chest. Why not the head? Small bull caribou gets two at *75* yards, spine and chest. Again, why not the head? A big grizzly gets it at *75* yards, through the chest: Same question.

The statement about the Dall sheep was one of the most unsportsmanlike I have ever read. You, Mr. F. W., shot at a *running* sheep at 700 to 800 yards? You say "The animal is entitled to consideration." What consideration did you give that sheep? How many more have you *tried for* at that range?

Charles A. Cline.

## BOOM!

Nashville, Tennessee.

Editor:

It has happened again. Another piece of scrap-iron exploded, forunately without injury of any particular consequence.

At a turkey shoot I attended some country lad turned up with an ancient single-barrel shotgun whose stock was wrapped with friction tape. The barrel was attached to the frame with baling wire. Of course he had to use one of those "high-power hulls," and when he pulled the trigger the gun went boom. The shooter received numerous small particles about the face, which luckily missed his eyes. A small stud struck a spectator's hat.

Frank B. Hill.

## CHIEF PARKER'S HEADDRESS

Columbus, Ohio.

Editor:

I have reason to believe that the front cover of the November issue of The American Rifleman, a very attractive picture of Chief White Parker, is backwards. Is that not a German swastika on the headdress instead of the Indian good luck sign? If the picture were reversed, it would no longer be a swastika.

Am I correct in thinking that this picture, in processing for the cover, was reversed?

Willis R. Fidler.

*Mr. Fidler is quite correct—the picture of Chief White Parker was reversed in processing, to better balance the November cover.*—Ed.

## ACCURACY IN HUNTING

San Antonio, Texas.

Editor:

I have read several sportsman's magazines, as well as The American Rifleman, about the hi-powered rifles you need, or ought to have, to get your deer—stressing killing power, muzzle velocity, trajectory, etc.

I am not an authority on rifles, being reasonably young as hunters go, so I can't say, "Well, I remember when. . . ." But I have killed quite a few deer with several different calibers of rifles, from .22's to .30-'06's. I want to mention here and now that a deer shot with a .22 Long Rifle within a 100-yard range is your meat—if the shot is placed in a vital spot. Naturally, any rifle of larger caliber is more lethal, but again I point out *placed in a vital spot*. That is where *accuracy* comes in. I readily admit that a larger caliber, for instance any .30 caliber, is more potent as a killer. But worlds of game are lost year after year because of *inaccuracy*. I have seen game wounded with large rifles and lost absolutely because the man behind the gun did not hold where he should have.

It seems to me that too many hunters are looking for a rifle which only requires that they get the address of the buck, fire in that general direction, and expect the animal to fall stone-dead from fright, muzzle blast, or just die from the wind of the bullet passing over, under, or behind.

Another thing every man or hunter should do—look twice before shooting to make sure that what he sees moving is what he is looking for. To this day I have never seen the man that looked like a deer or a turkey to me, whether he was walking, sitting in a tree or under the tree. look twice—make sure—it will only take a second longer and there never has been a buck with a rocking chair on his head worth shooting a man for. Then, place your shot, and place it well! accuracy means everything, carelessness is naught.

Albert I. Serna.

## THIS BRING IT DOWN?

Evanston, Illinois.

Editor:

I am a genius—poet, inventor, philosopher, and researcher—and, like all geniuses, my mainspring is conceit.

Hence my blood pressure went up exactly 45.4 points when I saw my letter on page 48 of the November Rifleman credited to another party.

W. R. Kaufman.

*Our apologies to Mr. Kaufman's genius. Through error his letter in the Dope Bag, titled Enfield Barrel on Mauser, was credited to someone else.*—Ed.

## RIDGLEY—PRO . . .

Philadelphia, Pa.

Editor:

After reading "Let's Get Acquainted" by Charles S. Ridgley (November, page 7), I uttered a profound Amen! During the past ten years, I have repeatedly expressed the same ideas, both orally and in print. The ignored and unsung 80 per cent of our membership deserve a run for their money. Look at the National Muzzle-Loading Rifle Association. . . . Their matches have events for every type of black-powder burner. They even welcome my loose-load, front-fed duelling pistols and gauntlet man targets. The lads who love to shoot, yet lack the skill and the equipment, the time and the desire to become champions, should not be ignored.

Roy S. Tinney.

Denver, Colorado.

Editor:

"Let's Get Acquainted" by Charles S. Ridgley expressed my sentiments better than I can say. Before I quit the civvies for the Marine Corps green I used to pick up a turkey or two at the type of matches he so aptly describes. Since being discharged I've been thinking there are a lot of men who would like the same sort of get-together on week ends.

I am writing the NRA for a list of shooters in my community. While we will be starting from scratch—no clubhouse, no range, nothing but a common interest in shooting and guns—If I can find a few with the same feelings Ridgley and I have, we'll do some informal match shooting.

W. F. Brokate.

E. Norwalk, Conn.

Editor:

C. S. Ridgley's article is one approach to the problem of increased participation in matches, but there may be another.

As you may know, sailboat racing, once a contest to see who could spend the most money on a boat, was rescued and changed into a contest of helmsmanship and savvy by the development of Snipes, Comets, Stars, Lightnings. Other "one-designs" give week-end pleasure to people who could never afford "class boats." Now, why don't we shooters do the same thing?

If the NRA would sponsor, say the "NRA .22 Target Sporter," contests could be held for "NRA Target Sporters" *only*, and we'd see how these people with 12-pound 52's and custom stocks would make out with everybody shooting nearly identical guns.

Such a gun could be a compromise weight, say eight pounds, have a stock with grip, etc., like a P. G. Springfield, and semi-beavertail forearm, very simple sights, and sell for, say, $35.00. Guns *must* be shot "as issued."

If a man was interested in shooting but couldn't see spending $50.00 to even have a chance at the local clubs; if a real hot-shot could no longer spare the practice time for real matches, yet hated to leave shooting altogether; if a man (or gal) has to forget about ever becoming a top-flight shot, yet likes competition; or for the Juniors—such a "One-design" would fill the bill.

And as for Camp Perry—there are plenty of people sailing in the Bermuda races who would never have left the dock if there hadn't been Star boats to start in.

In other words, let's have some matches that test the shooter instead of the gun.

H. H. Smith, Jr.

## . . . AND CON

San Francisco, Calif.

Editor:

If Mr. Ridgley (author of "Let's Get Acquainted," page 7, November) would follow his own advice and only "get acquainted" with the fellows of the same opinion on what is wrong with us "old lady belly shooters." . . . I feel sure they could find the mere ten persons out of the 80 per cent of the 203,000 NRA members necessary to organize their own club, do the work, and put up the money to do what they want to do.

What is it that they want? Being only a target shooter, of course I wouldn't know. I have patiently read their mouthings in a vain effort to find out so I could tell them, but they vaguely mutter about "plinking targets, breakable disks, bench-rest shooting, Mo-Skeet-O, etc., etc."

James C. Nerney, Jr.

# BOOK REVIEWS

## PRACTICAL MANUAL OF GUNS

*By* Maurice H. Decker

This is an attractive cloth-bound book at an attractive price, $1.50.

In a pocket-sized format of about 5 x 7 inches, it contains 192 pages profusely illustrated, mostly with rather clear line cuts.

It has chapters on rifles, shotguns, and handguns, sights and sighting, including telescope sights. There is quite a lot of basic material on gunsmithing, including the remodeling of military rifles, finishing and checkering gunstocks, bluing, engraving and etching, etc. The book is notable for the large number of small, practical kinks it contains.

While it is quite elementary, it contains much of interest to any gun user, and even the advanced shooter can learn some useful things from it.

Simply and soundly written by an author who really knows guns, it is an excellent value for the price.—J. S. H.

*(Published by Paul, Richmond & Co., Chicago 6, Illinois, and available from the NRA Book Department, $1.50.)*

## RIFLES FOR LARGE GAME

*By* Elmer Keith

Keith's *Rifles for Large Game* is a book that can be recommended without reservation. Elmer Keith is one of those rare individuals who, in addition to having been reared with a rifle in his hand and a six gun on his belt, has an inquisitive mind, a talent for experiment and design, and a flair for putting things down on paper so they are interesting to read.

This big book of 406 pages and a little over 200 excellent illustrations is as fascinating as a novel. It is at once a primer, an intermediate, and an advanced text on all the more vital subjects connected with hunting game of every size, from coyotes up.

His chapters on Selecting the Rifle; Killing Power; Anatomical Killing Points; and Rifles for Dangerous Game give, in sound and reasoned form, the results of a lifetime of actual experience, well-ordered experiment, and careful observation. Every tyro at the game should read these chapters before buying a rifle or starting on a hunting trip. Moreover, the tyro is not the only one who would benefit. Ninety nine out of a hundred men who already consider themselves good hunters would be better ones after reading this book.

Other chapters include, Metallic Sights; The Hunting Scope; Sighting In; Brush and Timber Rifles; The Double Rifle; Game Shooting Positions; Trigger Pull; The Stalking Rifle; Bullet Design; Actions and Barrels; Stock Design and Bedding; Handloading Game Cartridges; Saddle Scabbard Positions; and Rifle Care and Safety.

Throughout the whole work the author illustrates point after point by hunting anecdotes and actual personal experiences that bring in a real tang of the great outdoors, and make the book mighty hard to lay down.—J. S. H.

*(Standard Publications, Inc., Huntington, West Virginia, $10.00 Available through the NRA Book Department.)*

# COMING EVENTS

## COMING EVENTS

The four classes of registered tournaments are indicated as follows:

**AA**—National Matches.
**A**—Regional Tournaments.
**B**—State Championship or large district matches.
**C**—Local tournaments.
**Un**—Indicates tournaments that are not registered.

Tournaments requiring Advance Entries are indicated by **Adv** and tournaments that plan to limit the entries to a predetermined number are indicated by **Ltd.**

JANUARY

**5, D. C. (C)**—National Cap. Gallery Pistol Tournament, at Washington, D. C. T. G. Arnold, 5308 41st Place, Hyattsville, Md. **Adv-Ltd.**

**18, New Jersey (C)**—1st Annual Winter Small-Bore Rifle Tournament. Merrill S. Cottrell, 5 Caloris Avenue, Millville.

**19, California (C)**—San Francisco Police Monthly Pistol Tournament, at Lake Merced. Arthur Markgraf, 767 27th Avenue, San Francisco.

**25, Pennsylvania (C)**—Second Annual January Smallbore Rifle Gallery, at Richboro. Fenton Thompson, 5527 Miriam Road, Philadelphia.

**26, New York (Un)**—Two- and Four-Man Team 100 Yard Matches, at New York. Eric Bolton, 16 Storm Street, Dobbs Ferry.

FEBRUARY

**9, D. C. (C)**—National Cap. Gallery Pistol Tournament, at Washington, D. C. T. G. Arnold, 5308 41st Place, Hyattsville, Md. **Adv-Ltd.**

**15-16, New York (B)**—Niagara Frontier Small-bore Rifle Matches. M. Lawrence Baker, 120 W. Chippewa St., Buffalo.

**16, Pennsylvania (C)**—2nd Annual Pa. Indoor Pistol Championship, at West Chester. Mrs. Alice Matthews, 108 N. Green Hill Road, Broomall.

**16, California (C)**—San Francisco Police Monthly Pistol Tournament, at Lake Merced. Arthur Markgraf, 767 27th Avenue, San Francisco.

**22-23, Ohio (B)**—Annual Ohio Gallery Individual Championships, at Columbus. Bob Rarick, 1820 Eureka Drive, Dayton.

**22, New York (Un)**—Metropolitan 100-Yard Championship, at New York. Eric Bolton, 16 Storm Street, Dobbs Ferry.

**22, Pennsylvania (C)**—Second Annual February Smallbore Rifle Gallery, at Richboro. Fenton Thompson, 5527 Miriam Road, Philadelphia.

**22-23, D. C. (Un)**—6th Annual Indoor Rifle Championship Team Match, at Washington, D. C. A. G. Hamilton, Room 4230, Marine Headquarters, Arlington Annex, Navy Dept., Washington.

**28-March 1-2, Connecticut (Un)**—Conn. State Assn. Gallery Rifle Matches. A. J. Griffin, Conn. State Rifle & Revolver Assn., New Haven.

MARCH

**5-6-7-8 & 9, Florida (B)**—National Mid-Winter Pistol Matches. National Mid-Winter Pistol Matches, Box 253, Tampa.

**14-15 & 16, Illinois (B)**—Mid-West Gallery Rifle Championships. Clarence Zink, 8827 S. Leavitt Street, Chicago 20.

**16, California (C)**—San Francisco Police Monthly Pistol Tournament, at Lake Merced. Arthur Markgraf, 767 27th Avenue, San Francisco.

**16, D. C. (C)**—National Cap. Gallery Pistol Tournament, at Washington, D. C. T. G. Arnold, 5308 41st Place, Hyattsville, Md. **Adv-Ltd.**

**22-23, New York (C)**—Metropolitan Rifle League Gallery Tournament. Eleanor Dunn, 2922 Concourse, New York 58.

**29, Pennsylvania (C)**—Second Annual March Smallbore Rifle Gallery Tournament, at Richboro. Fenton Thompson, 5527 Miriam Road, Philadelphia.

**29-30, New Jersey (C)**—75-Foot Gallery Small-bore Tournament, at Union City. Beulah Hostetter, Cranford Hotel, Cranford.

## The SPOTTING SCOPE With RAY STANN

There may yet be salve for the small-bore shooters who hope to get to Florida in 1947. . . . While the National Mid-Winter Pistol Matches are set for Tampa on March 6, 7, 8, and 9 there definitely will not be the accompanying Mid-Winter Small Bore event at St. Petersburg, BUT . . . around January 1 there may be announced a four-day small-bore event at Jacksonville on March 20, 21, 22, and 23 with a prior two-day competition at Savannah, Ga., possibly around the 15th and 16th. . . . It is all indefinite at this writing, however.

☆ ☆ ☆

NRA member C. M. Lesslie, of B447 Diablo Heights, Balboa, Canal Zone, believes that young parents who have had to drop the shooting sports can be brought back if clubs will make arrangements for the care of youngsters at their ranges . . . would like to hear from others with thoughts on the idea of club-sponsored children's recreation areas, which would also eliminate any danger of children wandering on the range.

☆ ☆ ☆

How fame does spread! . . . Recently a letter was delivered promptly to NRA Technical Chief Hatcher . . . and the only address on the envelope was,

"Gen. Hatcher,
Authority on Guns
Washington, D. C."

☆ ☆ ☆

At a recent any-rifle, any-sights match sponsored by the Arlington (Va.) Rifle and Pistol Club, Capt. C. H. Howell cleaned up all three individual matches and the aggregate . . . against the finest U. S. sporters . . . firing a "liberated" German sniper's rifle and using 7.92mm ammo loaded in this country for the Chinese. . . . The match, for those who want to try a new course of fire for any-rifle events, was fired prone at 200 yards on the 100-yard small-bore target, and standing at 200 yards on the 50-yard pistol target.

☆ ☆ ☆

The paper shortage was the inspiration for a novel idea by Donald Stillman, secretary of the Lewisburg (Pa.) Rifle and Revolver Club . . . lacking mimeograph paper to announce his club's indoor activities, Stillman whets the members' competitive appetite by mimeographing on the backs of 50-foot five-bull small-bore targets, tells them "to bring in this announcement and shoot a possible on it."

☆ ☆ ☆

The NRA's Frank Wyman has been named by Commander-in-Chief Louis E. Starr of the Veterans of Foreign Wars as commissioner of rifle and pistol clubs for the VFW Athletic Association. . . . He will direct the program which Commander Starr will strongly recommend each post adopt.

☆ ☆ ☆

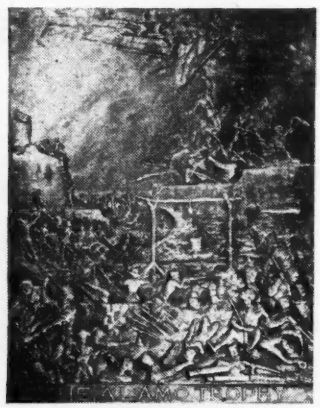
Ancient History Dept.: Thirty years ago in the RIFLEMAN (January, 1917) the establishment of the DCM office was announced.

## The JUNIOR MARKSMAN

### NEW JUNIOR TROPHIES

Two new awards for the younger riflemen have been placed in competition by the NRA. Pictured below, these bronze plaques will be emblematic of top honors in the first "open" National Junior Shoulder-to-Shoulder Rifle Tournament planned by the Association for next spring.

Representing the National Junior Team Championship, the ALAMO TROPHY is a true symbol of the significant contributions made to this nation's history and development by the rifle and the superb marksmanship of frontiersmen like Davy Crockett and his fellow defenders in the famous battle which provides the subject for this award. The trophy itself is a reproduction of a portion of the fine painting, "Dawn at the Alamo," by H. A. M'Arlde which hangs in the Senate Chamber of the Texas State Capitol in Austin, Texas.




**Alamo Trophy**

Planned as a companion award with the Alamo Trophy, the MORGAN TROPHY will be presented to the highest-scoring individual junior rifleman. Designed similarly to the team award, this trophy has as its central theme a portrait of General Daniel Morgan, close friend of George Washington and dashing leader of the famed Morgan's Riflemen. The picked members of this unit, recruited among the frontiersmen of Virginia, represent the first large unit of any military force depending for their success on rifled arms. Bearing on their fringed buckskin hunting shirts the motto taken from Patrick Henry's celebrated speech, "Liberty or Death," Morgan's Riflemen especially distinguished themselves at the battle of Cowpens.

The artist producing both of these trophies is Joseph Anthony Atchison.

### FIRST OF NATIONAL JUNIOR POSTAL MATCHES

The first in a series of 1946-'47 National Junior Club Postal Matches found 592 junior teams making their bids for national shooting honors. For the first time in these matches team entries are classified, firing in one of five groups against other teams representing the same type club or of the same age group.

In Open Team competition the Far Rockaway High School, Far Rockaway, N. Y.

**Morgan Trophy**

which scored 949 over the prone-standing course, holds a ten-point lead over the second-place Manhasset, N. Y., Musketeers. The Western Hill YMCA in Cincinnati, Ohio, scored 931 for third.

Three Pennsylvania teams are leading the nonmilitary school competition. Both the Upper Darby, Pa., High School, and the Munhall, Pa., High School, long prominent in junior match firing, scored 498 over the all-prone course. Close behind with 497 is the Oakmont, Pa., High School.

High among military schools with the only "possible" in the first match is Xavier High School of New York, N. Y. Culver Military Academy, Culver, Indiana, is the nearest team to Xavier, having dropped six points for 494. In third place is the Christian Brothers Academy, Albany, N. Y., with a 493.

The YMCA Junior Rifle Club of Ashland, Ohio, holds the lead in the under-fifteen-year-old class with a 476. However, with the Western Hill YMCA, Cincinnati, Ohio, and the B-24 Marine Detachment Junior Rifle Club, Springfield, N. Y., both scoring 475 to finish close behind the Ashland YMCA, there should be a tussle in this class.

High among the girls' teams is the Oakmont, Pa., High School, which scored 494. The Malden, Mass., High School girls' team is second with 485, just two points ahead of Quincy, Ill., High School's 483.

### JUNIOR LEAGUE INFO WANTED

The National Rifle Association is seeking information on organized Junior rifle leagues. Would anyone knowing of a Junior league or active in any capacity in a Junior league send the following data to the NRA: league name; names and addresses of league officers; constitution, by-laws, or regulations of the league; names of clubs or teams firing in the league; firing schedule and course of fire used by the legaue. If possible send bulletins of the league with the above information to the Club Activities Division, Junior Section, of the National Rifle Association.

# TOURNAMENT REVIEWS

Marine Warrant Officer J. E. Riggs, Jr., took the North Carolina Small-bore Championship in Greensboro, October 18 and 19. Riggs scored a 1180-50X iron-sight aggregate and a 1178-60X any-sight aggregate to pile up 2358-110X, the winning Grand Aggregate score. A. W. and W. W. Philbrick, father and son from Portsmouth, Va., set a new State record in the 50-meter two-man team event, scoring 396-16X. Mrs. Virginia White, Winston Salem, N. C., scored 200-13X for another State record in the Oakley Trophy Match which allowed neither sighters or warmers.

☆ ☆ ☆

Charles Simon retained the South Atlantic Small-bore Championship, fired in Savannah, Georgia, October 12 and 13. Bob Dixon, Clearwater, Florida, almost beat him out in the fight for this championship, scoring 3151-146X to Simon's 3151-153X.

☆ ☆ ☆

CWO C. A. "Smitty" Brown, USMC, of Quantico, Va., won the Ninth Mountain State Pistol Tournament at Parkersburg, W. Va., October 12 and 13, with a grand aggregate score of 1696. M. I. Bridges and W. E. Stark, both of Washington, D. C., were second and third, respectively, with 1688-1687.

☆ ☆ ☆

Lt. Col. N. J. Rodeheffer, USMC, defeated some of the outstanding pistol marksmen in the East to win the Second Pistol and Revolver Tournament of the U. S. Park Police in Washington, D. C., September 29, 1946. Mrs. Alice Matthews, Broomall, Pa., Women's National Pistol Champion, won the ladies individual match. The White House Police pistol team retired the WTOP team trophy, donated by a local radio station, from competition this year, easily defeating seventeen other team entries.

☆ ☆ ☆

Tito Balestrieri won the "Swiss 500" match, fired in Union City, N. J., on October 12 and 13. Scoring 500-42X over the fifty-shots-at-fifty-yards course, indoors, with metallic sights, Balestrieri defeated Rans Triggs' 40Xs, Bill Schweitzer's 39Xs, and Walter Klem's 30Xs. Audrey Bockmann was high woman with her 499-29X.

☆ ☆ ☆

Ed Kell, Atoka, Oklahoma, won the first fall small-bore tournament sponsored by the Magic Empire Tournament Assn., October 12 and 13, in Tulsa, Oklahoma. Leading the Masters in one-two position were Mott Dunham and Frank Parks, both of Tulsa. Other class winners in the aggregate were: Expert, C. F. Sellens, Bunker Hill, Kansas; Sharpshooter, Don Brubaker, Hogoton, Kansas; Marksman, Elizabeth Whitaker, Tulsa, Oklahoma.

Eliot G. Clemons, New London, N. H., scored 248 x 300 to win the Massachusetts Rifle Association's Creedmoor Cup Match at Walnut Hill, Mass., October 13. In this any-rifle, any-sights, any-offhand-position match at 200 yards, Clemons used a .250-3000 Winchester Model 70 to win over second-place winner L. L. Maine, Newport, R. I., who scored 214 with an iron-sight .22 caliber rifle.

☆ ☆ ☆

The Richmond Small-bore Match held at Richmond, California, October 13, went to A. V. Hanscom, of San Carlos, California. Hanscom tallied 993-57X in the Grand Aggregate to win over Harold Bush, San Francisco, who was close behind with 991-50X. Hanscom fired possibles in three of the five matches, the 100-yards iron sight, 50-meters any sight, and the 100-yard any sight.

**Charles Patterson of Kew Gardens, L. I., N. Y., because he has a stiff knee, is forced to use a rather unorthodox position when shooting from kneeling. This is permissible under NRA rules**

Kyle Snowhill took one individual match and the Grand Aggregate of the Greater St. Louis Small-bore Tournament, held October 13, in St. Louis, Mo. A bad fishtail wind held the scores down and Herb Strecker's winning 400-26X in the 50-yard any-sight match was the only possible of the meet. Snowhill took the 100-yard any-sight match with 396-19X, Curt Beyer won the iron-sight Dewar with 397-19X, and Bea Rimmer was high in the 50-meter any-sight event, scoring 398-28X.

☆ ☆ ☆

S. M. Ledbetter, Greenville, S. C., won the Grand Aggregate of the Volunteer Rifle and Pistol Club's small-bore tournament at Camp Sevier, Knoxville, Tenn., on October 27, scoring 1582. Second with 1579 was W. D. Nowling, of Chattanooga, Tenn., who won two of the matches scheduled, but failed to beat out Ledbetter for the aggregate.

☆ ☆ ☆

Chester Heald, Wilmington, Mass., scored 159 x 200 in the 200-yard offhand re-entry match at the 12th Annual Offhand Match New England Championship, October 12 and 13, at Reading, Mass., to win the Major James H. Keoough Trophy. William H. Thurston of Newport, R. I., scored 154 x 200 for second.

☆ ☆ ☆

J. W. Thomas, Jacksonville, Fla., won the third registered pistol tournament of the Florida West Coast Pistol League, fired October 20 in Jacksonville, with a center-fire aggregate of 846. Second with 843 was R. S. Sutton, also of Jacksonville. Sutton won the rapid-fire match, Eli White took the timed-fire and the National Match Course events, and Ralph Kirk, won the slow-fire match.

☆ ☆ ☆

Expert Norman Studt of Dearborn, Mich., won eight medals in nine matches at the Fourth Annual Mid-West Gallery Pistol Tournament in Chicago, Ill., November 1 through 3. This good shooting also won him the Grand Aggregate with a 1080x1200 score. Second and third were William McCartney, Chicago, 1068, and Griffith E. Jones, Hammond, Ind., 1058.

☆ ☆ ☆

Careful planning and competent personnel made the first tournament of the Capital City Rifle and Revolver Club of Sacramento, Calif., in five years, the Fifth Sacramento Small-bore, an excellent affair. A record score in the metallic Dewar helped Robert Perkins out-X Bryan Fuhrman to win that tournament. Perkins scored 998-78X to Fuhrman's 998-74X. Third with 995-73X was Henry Wright.

☆ ☆ ☆

Robert Perkins retained his titles of Pacific Southwest and Southern California small-bore champ at the matches of the Glendale Rifle and Pistol Club, November 16 and 17. Perkins won both titles with a 2794-197X score in the aggregate, topping Jack Bell's second-place 2786-167X.

☆ ☆ ☆

Bob Sinclaire won the Florida State Small-bore Championship, fired at Clearwater on November 9 and 10, with a 3169-164X aggregate. Eighteen-year-old Audrey Richards gave him a close fight in a meet marked by stiff breezes and 75 crossfires. Miss Richards' aggregate was 3161-150X.

☆ ☆ ☆

Expert L. F. Bisio, San Francisco, Calif., closed the outdoor season of the Bay District Small-bore Association with a close win over B. M. Fuhrman, also of San Francisco. Bisio scored 993-55X in the aggregate to beat Fuhrman by one point and one X. Ted Gould placed third with 990-61X.

# DOPE BAG

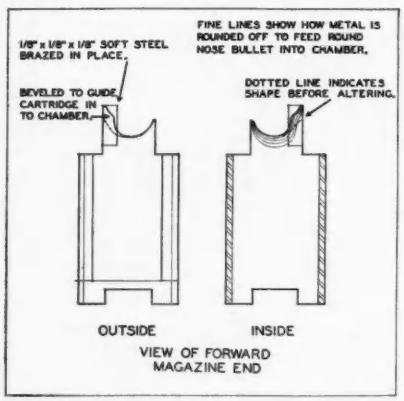
**Conducted by Major General J. S. Hatcher**
Edwards Brown, Jr., A. H. Barr, J. L. Murphy, J. S. Rose

**Enfield Magazine Trouble · The .22-250 Bluing Question · Handy Trigger Guard Dummy Jap Cartridges · Bedding Mauser Barrel · A "Wildcat" in .22 Springfield Enfield Bolt Safety · Pleasing Stock Design · Source for .30-'06 Bullets · Unusual Safety on Luger · Remodeling Italian 6.5 · Method of Correcting Headspace**

## ENFIELD MAGAZINE PROBLEM

Many Enfield owners have written us concerning feeding difficulties with blunt sporting cartridges. The trouble is that the cartridge feeding from the left side of the magazine will jam against the flat extractor area on the back end of the barrel. Because of the many requests for a suggested correction method, we took an Enfield to the basement shop and tried to sweat small metal guides to the sides of the receiver, but the job seemed too difficult when working with a small piece of ⅛ inch square stock. Abandoning this much-recommended method for something better, we found the answer.

Remove the magazine and build up the right front corner, either by welding or brazing a small piece of steel and then reshape it. The extension will be approximately ⅛ inch square and ⅛ inch higher than the left-side projection. To get an idea as to how much building up was necessary the first attempt was with ordinary soft solder, which of course, was only a temporary job. Later the small piece of steel was brazed to the magazine and our feeding problem, even with very blunt bullets, was solved.


1/8" x 1/8" x 1/8" SOFT STEEL BRAZED IN PLACE.
FINE LINES SHOW HOW METAL IS ROUNDED OFF TO FEED ROUND NOSE BULLET INTO CHAMBER.
BEVELED TO GUIDE CARTRIDGE IN TO CHAMBER.
DOTTED LINE INDICATES SHAPE BEFORE ALTERING.
OUTSIDE
INSIDE
VIEW OF FORWARD MAGAZINE END

**Blunt sporting cartridges can be made to feed without jamming in Enfield magazines by brazing or welding a small steel piece to the right front corner, then shaping as indicated above.**

An advantage of working on the magazine is that there is no necessity to apply heat to the receiver, especially up near the locking lugs. A suggestion from one of our members was to drill and tap the receiver from the flat underside, allowing the end of the screw to serve as a guide, but we like the magazine alteration much better. Most anyone handy with tools can do a safe and satisfactory job. —A. H. B.

## DOPE ON THE .22-250

Those "W.O.S." (.22-250) head-space gauges mentioned sometime ago are now available through Doug's Sporting Goods Store, 323 Third Avenue, Chula Vista, California. Here is some interesting dope sent in by J. E. Bradley who makes those gauges:

"I would like to pass on some dope on the .220 W.O.S. or .22-250. The chamber is cut for a case length of 1.922", and cases should be trimmed to 1.915". A gun chambered to take the 1.577" gauge will not close on the 1.579" gauge. After firing, the bolt should close hard on 1.579" gauge. New .250 cases can be formed, and very little trimming is needed. For every .001 inch the shoulder is moved forward, the neck is shortened the same amount. When bullets are seated in cases with short necks and long body due to not being head-spaced properly, the bullet has too far to jump to engage rifling, causing deformed bullets and wild shots.

"Sometime ago I made up three .220 W.O.S. rifles using Springfield actions and target-weight barrels. All three were chambered to take the 1.577" gauge, but would not take the 1.579". These guns would stay in 1-inch circle at 100 yards with ease. Gun No. 1 was left "as is." No. 2 was chambered to take a 1.600" gauge, and No. 3 was chambered to take a 1.620" gauge. Cases were formed from .250-3000 cases for each gun. No. 3 would not stay under 2 inches at 100 yards with what we had to work with, so after about 500 rounds it was refitted and chambered to 1.577". With 36 grains of No. 4320 and a 55 grain Sisk bullet, I got an 8X Possible. No. 2 is not dependable enough for target shooting. Have had 9 shots scattered over the 10 ring and then had a wild one, a wide 9. Am not through with it yet. In every case where the gun was not shooting as it should, I have found it chambered too long and after a rechambering job they work O.K. Must be something to it after all."—J. E. Bradley.

## A QUESTION OF BLUING

"I was very much interested in your article, 'Home Workshop Bluing,' in the September issue of The American Rifleman.

"Would you please tell me just how much lye and soda nitrate to use in 20 quarts of water? With that amount of water in my bluing tank I have a three-inch depth. Give me the amount of lye in the number of cans or pounds, soda nitrate in pounds. Another question—Can I work this solution in my cellar? My friends tell me that the fumes would drive me out."—Van Allen Best, Castleton-on-Hudson, N. Y.

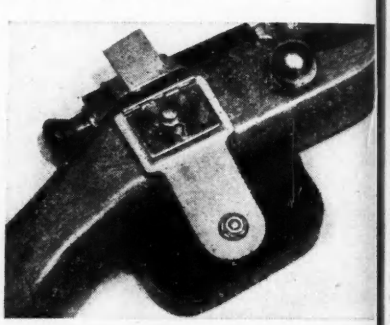
**Answer:** If you use 20 quarts of water you would use 20 quarts of lye and 10 quarts of nitrate by volume. I have never weighed these out to know exactly how much the chemicals would amount to in pounds. It just seems easy enough for me to take a lye can and its every two of these use two of water and one of nitrate. I would first start out with half that quantity of water, because when you add the lye and nitrate and it dissolves you will have a greater depth of bluing solution than the water alone gives.

For a similar type of bluing chemical, Bob Brownell of Montezuma, Iowa, indicates that for his How-To-Blue, 10 pounds of the chemicals make 1½ gallons of solution. I use around 15 pounds of his chemical in my 5 x 8 x 44-inch tank.

It is best to have some ventilation when you use the solution. I use mine in a rather closed-in basement, but have plenty of windows I can open. The fumes are quite noticeable, although I have never had any ill effects from them. That lye solution does give one a rather itchy feeling during the process.—A. H. B.

## THE COMPLETE TRIGGER GUARD

The photograph of the Nimco Gun Guard is almost self explanatory. It is being produced by The Nicholas Manufacturing Company of Forest Hills, New York.



**The Nimco Gun Guard**

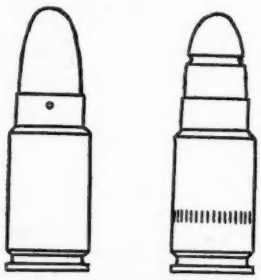
The primary purpose is safety. Your son or daughter may be well educated and disciplined in this business of firearms safety, but unforeseen and deadly circumstances can still result in accidents. Some day, sooner or later, your children will have access to your firearms and if persuaded by their friends and egotism they might give in enough to "show off Dad's gun." All ages of children from the baby to the adventurous 10-year-old should be effectively stopped by this guard, which may be locked by key to the rifle.

The felt lining of the metal case and leather strap will not mar the finish of your pet equipment. People who enjoy snapping the hammer on the empty chamber of your old Ballard or rim fire will be foiled if this shield is locked to the rifle when you place it in the rack.

Almost any gun can be fitted since the guard is sold in several sizes and each has an adjustable length strap.—J. S. R.

## DUMMY JAP PISTOL CARTRIDGES

"I have come across a few dummy Jap 8 mm. Nambu cartridges. I pulled the bullet from one of these and found no powder of any kind in the case and found no lead core in the bullet jacket. I tried to fire the primer in a Jap pistol twice, but it would not fire. The primer was copper colored. The bullet has a groove about ¼ inch from the tip. Enclosed is a drawing of the cartridge."—EDWARD MARK, Philadelphia, Penna.



**Jap Nambu 8 mm. cartridge dummies**

## BEDDING MAUSER BARREL

"I am making up a lightweight Mauser Sporter and I've heard a lot about free-floating barrels and a lot about tightly fitted ones. Which is the better? Please give me directions on how to go about the better of the two methods."—RODERICK B. BURTON, Brooklyn, N. Y.

**Answer:** The bedding of the rifle should be such that most of the work is done by the two guard screws and their bushings. When drawn tight, the two screws should pull the receiver tight against its bedding at the recoil shoulder. The barrel should be forced down against the tip of the fore-end so that about 15 pounds pull is required to separate the two. The intervening wood of the fore-end should be cut away so that about 1/32 to 1/16 inch clearance exists. The side edges of the fore-end may be cut so that they are a closer fit to the barrel, thus preventing admission of water. The wood along this edge, however, should not bind so tightly that when the heated steel expands it will cause the barrel to stick in an undesirable position after shooting.

This is the close-fitting method asked about. —A. H. B.

## A "WILDCAT" IN THE .22 SPRINGFIELD

"My U. S. Rifle cal. .22 M2 arrived from the D. C. M. a few weeks ago and I am considering its conversion to a "Varmint" rifle with pressure and velocity a little hotter than rim fire. I would like to use the same barrel if you consider it to be safe.

"Has anyone tried this rifle and action for wildcat purposes and if so, what were the results?"—S. J. STRATE, El Paso, Texas.

**Answer:** While at the Springfield Arsenal a few months ago I asked nearly the same question of Major J. R. Connelly, an Ordnance Officer serving in an Engineering capacity. His answer was to take me to his quarters where he had his own workshop and a finished .22 Springfield conversion.

He had used the case of the U. S. Carbine, cal. .30 cartridge, necked down to an outside neck diameter of 0.242". The length of the neck was 0.150" and the chamber neck was 0.002" larger than the case neck. The shoulder of his new case has an included angle of 40°. An 0.224" bullet of either 40, 45, or 50 grains is seated to a depth of 1/8".

The bolts on the government .22's are made very hard to preserve head space, and Major Connelly feels that for this conversion they should be annealed at 700°F. for 45 minutes. If, after the annealing, the bolt shows no cracks when subjected to Magnaflux or black light tests, it would be safe for conversion. A bolt marked with the letters N. S. and having a divided lug would be safe for a conversion to Hornet or equal pressure. A similarly treated bolt with a solid lug and the N. S. marking would be safe for the Carbine job or Lovell pressures.

The velocities with 45 or 50 grain bullets should run from the 2500 to 3000 foot-seconds when pushed by the loads Major Connelly has tested. The following are not maximum loads but are "starters" from which working charges can be developed: 13.5 gr. of #4198 with a 50 gr. bullet, 9.0 gr. of Carbine powder and a 40 gr. bullet, 10 gr. of #4337 with a 45 gr. bullet.

The cases were necked down with liquid soap plus a dash of aluminum stearate for a lubricant. A neck anneal and final resizing gave a well-performing case which would often grab a bullet even after firing. Accuracy was greatly improved by a process of thinning down the neck wall while in the necking die.

The face of the bolt had been cut to take the larger cartridge head and the firing pin and striker hole moved from rim- to center-fire positions. It is obvious that this entire conversion should be done by an experienced gunsmith. In the absence of .30 cal. Carbine cases, experimental adaptations of the .32 Self Loading Winchester and the .32-20 or .32 Winchester pistol cases, might be attempted.—J. S. R.

## BOLT SAFETY ON ENFIELD

"Some time ago I received through the D.C.M. an Enfield M17 and, though I have had no experience, have achieved something that approaches a light sporting rifle of pleasing appearance.

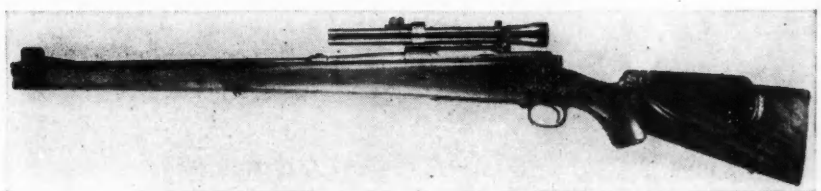
"There are, however, a few gremlins that might be expected from an initial experiment. I refer to the article in the October issue of THE AMERICAN RIFLEMAN, Dope Bag, regarding the Enfield bolt. I have polished the sear

## A PLEASING STOCK DESIGN

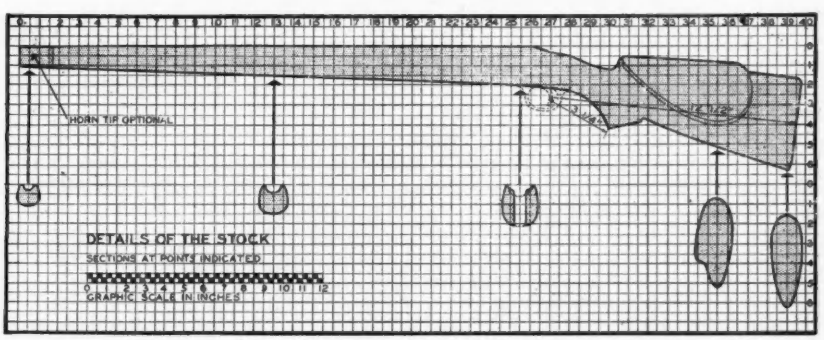
A few years ago Al Barr, of our Technical Staff, did a restocking job for Russ Lent that has drawn numerous words of admiration from nearly everyone who has seen it. There have been quite a few requests for detailed dimensions of the stock, so this month we are showing a photograph of the rifle and a dimensioned drawing of the stock. The action is a standard Winchester Model 70, and the 20" carbine barrel is chambered for the .270 cartridge. The stock is made from a selected Bishop blank and is based on Al's own ideas of a design for the Mannlicher Stock. The result is very satisfactory, and for a clean-cut, well-proportioned, and nicely balanced gun, it equals any that I have seen.

The forearm tip and grip cap are made of a plastic-type material. The finish on the gun brings out the grain of the wood very nicely and is quite durable. Tung oil with a Japan drier was used as a filler and for the final finish. The scope is a Lyman Alaskan with a Redfield Junior Mount.

The gun groups exceptionally well at 100 and 200 yards; apparently no accuracy is lost due to the short 20" barrel.—J. L. M.



**Above: Russ Lent's Winchester Model 70 with a stock made by Al Barr, which has been much admired. Below: Details of the stock drawn to scale**



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and cocking piece, and have removed some of the rear hump on the trigger to ease the trigger pull. I now find that the firing pin can be let down by releasing the trigger regardless of the position of the bolt handle, either barely on the caming surface, completely closed, or any intermediate position. At the position in which the bolt sleeve should prevent the safety stud from rising the firing pin falls with rather a half-hearted dull sound, but this is enough for concern. I do not doubt that the fault lies in the removal of too much metal on one or more parts. The above does not appear to indicate it, but I would appreciate your suggestion, and, if new parts are in order, where they may be obtained."—CHARLES B. NORWOOD, Keene, N. H.

**Answer:** The reason the firing pin can be released regardless of bolt position is because of the removal of metal on the rear hump of the trigger. That permits the sear to release the firing pin even though the safety stud on the front of the sear has not entered the groove provided for in the bolt. However, even without this safety feature the Enfield is as safe as any other bolt-action rifle when it comes to blocking the firing pin from striking the live primer before the bolt is closed; unless the bolt handle is in the closed position the cocking pin will come in contact with the cocking cam on the bolt and then arrest the motion of the firing pin before the firing pin projects. Take any other bolt action, such as the Springfield Model 1903 or the Winchester Model 70, and you can release the firing pin just as you now can in your Enfield.

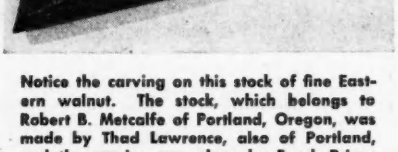
To prove that your rifle is safe and that the firing pin, even though released, cannot strike the primer, insert a cartridge case in your rifle containing a primer only without bullet or powder charge and try to fire the primer with the bolt held in a half-raised position. You will find that the primer will not fire until the bolt is entirely closed. (Even though there is no bullet or powder charge, still point the rifle in a safe direction when trying this as the primer will flash some distance beyond the muzzle if it goes off.)—A. H. B.

## SOURCE FOR .30-'06 BULLETS

"I wish to obtain some 110 grain bullets for my Enfield sporter. Could you tell me where I can get these? I would also like to know how heavy I can load with this weight of bullet and how much more muzzle velocity I will get? This is a 24-inch barrel."—MARK J. ZENSEN, Faribault, Minn.

**Answer:** There are only two bullet makers in business now to my knowledge, and these are Fred N. Barnes, Route 1, Durango, Colo., and Vernon D. Speer, 1522 "G" Street, Lewiston, Ida. I do not think either list a 110 grain bullet in .30 caliber at the present time. Normally, when components are available, you can, of course, get these bullets through the regular commercial manufacturers.

You will find some loads for these bullets in the Ideal Handbook. According to du Pont figures the maximum recommended charge of du Pont No. 3031 would be 57.5 grains, giving 3300 foot-second's velocity. I would not go quite that high and would consider 55 grains a maximum practical load.—A. H. B.



**Notice the carving on this stock of fine Eastern walnut. The stock, which belongs to Robert B. Metcalfe of Portland, Oregon, was made by Thad Lawrence, also of Portland, and the carving was done by Frank Prince**

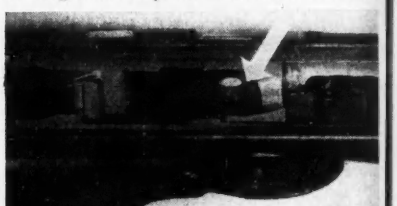
## MAGAZINE SAFETY ON LUGER

"Recently I purchased a D.W.M. 9 mm. Luger with an unusual feature. Since this purchase I have seen the same feature on two other Lugers.

"Just above and to the rear of the trigger is a ¼-inch hole drilled through the frame, the center line of this hole being ⅜ inch below the top of the frame. This brings the hole into the forward part of the clip channel. This hole is then ¾ covered with a spring which goes back straddling the magazine holder catch spring (spring is 1/32 inch thick) until it reaches the safety slide bar. It curves back ½ inch over the inside of the frame and is anchored in a milled slot in the frame.

"The trigger plate has been milled and the walnut grip relieved to accommodate this spring.

"Several of us have examined the gun and cannot determine the function of this unfamiliar addition. We have refrained from test firing this gun with the hope of receiving helpful information from your department."—C. S. ARMSTRONG, East Lansdowne, Penna.



**Above: Magazine safety found on some Luger models designed to prevent firing of the gun unless magazine is in place. Below: seen from inside**

**Answer:** The addition to the Luger that is shown in the two excellent photographs you sent is a magazine safety, intended to prevent the gun from being fired unless the magazine is in place. This is an unusual feature on the Luger, but several specimens with this addition have been seen.—J. S. H.

## REMODELING ITALIAN 6.5 RIFLE

"Please advise if it will be safe to have a new F.N.A. Brescia .256 caliber Italian Carbine of 36 inches over-all length, with dagger-type bayonet attached, rechambered for a Mannlicher-Schoenauer .256 caliber cartridge.

"Several months ago I saw a magazine article which described the remodeling and rechambering of one of these rifles so it would shoot the above cartridge. Are the ballistics of the Italian cartridge similar to that of the American-made Mannlicher-Schoenauer?"—JOHN MAYO, Syracuse, N. Y.

**Answer:** At best, the Italian rifle is not too strong and it has one definite weakness which makes the value of conversion rather doubtful. This is the fact that the firing pin and mainspring are retained in the bolt solely by a very

small projection. In case of a ruptured primer, the gas pressure tends to drive the firing pin out into the shooter's face. If this little stud should break off under these conditions the results would be disastrous.

We have heard on good authority of at least one person killed by having the striker blow up in his face due to a punctured primer. For that reason we do not recommend this reconversion job, although it would not be much work to clean out the chamber to handle the 6.5 Mannlicher-Schoenauer cartridge. The only redeeming feature is that this cartridge is not loaded to extremely high pressures in this country, but some of the foreign cartridges are. I recommend you keep the rifle as a souvenir.—A. H. B.

## A METHOD OF CORRECTING HEADSPACE

"A recently purchased Enfield 1917 rifle was found upon inspection to have excessive head space. The bolt would close on the 1.946 gauge but would not close on the 1.950. While this is not considered excessive according to some standards, it was more than was wanted by the owner of the gun. As it was not desired to spend a great deal of money on this job, I decided to try electroplating and the results were so satisfactory I would like to pass it on.

"The rear of the locking lugs on the bolt were highly polished with a very fine slip stone which removed all the old bluing and left a clean, bright surface for the deposit of metal. The entire bolt, with the exception of the rear end of the locking lugs, was coated with asphaltum varnish. The bolt was then taken to the electroplater, who built up approximately seven to eight thousandths of an inch of chromium. (One thousandth of an inch per hour.) This was deposited on the steel, which is better for a wearing surface than the usual copper-nickel and chromium plate. Upon receiving the bolt from the plater, the surface was found to be quite rough and was smoothed down with a small high-speed grinder, using a piece of shim brass to protect the bolt. The 1.940 gauge was then inserted in the chamber but the bolt handle would not quite close. By carefully removing the excess metal from the locking lugs with the slip stone and checking with Prussian blue it was very simple to bring the bolt to a snug fit on the 1.940 gauge."—WILLIAM M. KUGLER, Bremerton, Wash.

## NICE ENFIELD SPORTER

Ray Heidrich, 5623 Fertile St., Compton, California, is a gunsmith formerly associated with Jack Ashurst. We have just seen an Enfield remodeled by Heidrich which seems to be a nice job in every way. It was restocked using dark, dense American walnut. The stocking job, including bedding, indicates quality workmanship throughout. The well-shaped stock seemed to please everyone who examined it. There was no checkering.

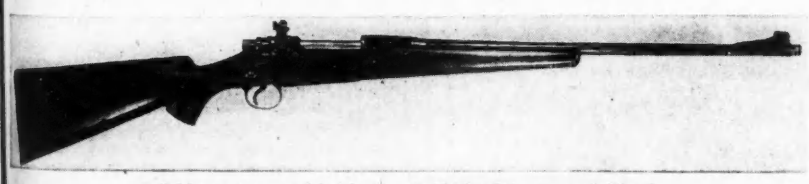
The method for cocking on opening of bolt, plus very short striker travel (.20 inch), is different from most conversions we have seen. The job was done by cutting back the cocking-piece sear, but without any welding being done on the sear or even filling in the underside of the bolt as is frequently recommended. The safety is operative in the full rearward position only, even though the milled safety groove in the right side of the cocking piece has been cut away. The first stage of the military pull was removed and the trigger pull made adjustable by means of a screw located in the forward end of the sear. A very heavy firing pin spring offsets the extremely short striker travel. Poor ignition was expected, but it did not show up on the range, where the rifle performed well in the way of quite small groups.

In addition to doing about all phases of first-rate gunsmithing, Heidrich likes his wildcats too. A sample of his own version of a short, fat .22 looks interesting. The .30-'06 was shortened to 1⅞ inches. The loads are 34 grains No. 3031 with 55 grain bullets and 35.8 grains of the same powder with 47 grain bullets. The latter load does close to 3900 feet per second. There are other wildcats by Heidrich, but he apparently favors the .22-'06 Ashurst, and he furnished a lot of good loading dope for this cartridge, which seems to be a rather popular wildcat. One of the best loads reported is 42 grains No. 3031 powder behind a special 48 grain copper tubing bullet. "Less than inch groups at 100 yards, at about 4100 to 4200 feet per second; 45,000 to 48,000 pounds per square inch," so Heidrich reports.

## KINK FOR MUZZLE CROWNING

"Morgan Holmes in his article, 'Remodeling the Military Mauser,' in the July issue of THE AMERICAN RIFLEMAN, describes the use of brass balls to crown the muzzle.

"For the benefit of readers who, like myself, could not locate the brass balls, I offer a suggestion given me by a shop foreman. He suggested the use of a round-headed brass machine (or wood) screw. I tried it on my Enfield remodeling job and found it quite satisfactory. Different-size screws were used to obtain a smooth radius."—JOHN L. LAPPIN, Drexel Hill, Penna.



Enfield sporter remodeled by Ray Heidrich of Compton, California

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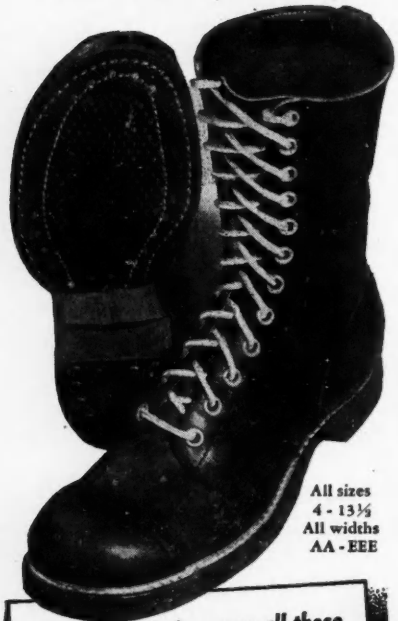

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## HOMESPUN BULLETS

During the war years when jacketed bullets were unobtainable the fired .22 cartridge case was used regularly as jacket material for .22 caliber bullets. The idea is not new, but several shooters developed dies which are capable of producing bullets with very good accuracy, especially when unheaded new .22 hulls are used. Back in the May, 1944 and February, 1945 issues of THE AMERICAN RIFLEMAN, F. C. Ness reported on his experiences making bullets with the R.C.B.S. dies furnished by Fred T. Huntington of Oroville, California. Since that time we obtained a new set of the R.C.B.S. dies, some new unheaded rim-fire cases and 3/16-inch diameter lead wire. By pre-swaging the lead wire sections into the hulls and using a regular Pacific reloading tool for a press, we have made some exceptionally accurate bullets.

These new dies make the 8-S or 8-spire form of bullet and the weight, depending on the lead core, can be varied between 40 and 55 grains. The favorite for accuracy, however, is a bullet weighing 54 grains made from .22 Long Rifle cases. The .22 Short case would be used for the lightweight bullets.

Best results were obtained when an exceedingly small amount of liquid soap and zinc stearate was used as a lubricant, although I believe Huntington does not recommend any kind of lubricant in the bullet swage. The bullet diameter is .223 inch, which appears to be just the right size for most of our .22 rifles.

In an Ackley Improved Swift the 54 grain bullet grouped in .98, .76, and .72 inch at 100 yards, using 40.5 grains of du Pont No. 4064 and I.M.R. 4895. A High Wall Winchester made for the old Rimmed .22 Niedner Magnum grouped in .92 and .65 inch using 26 grains No. 3031 powder.

Another High Wall Winchester made up by Carl Nix for his own version of a rimmed cartridge based on the .30-40 Krag case, made consecutive 100-yard groups of .65 and .84 inch. The load was 33 grains of No. 4320, Ipco wads, same kind of 54 grain R.C.B.S. bullets and Winchester 115 primers. The main difficulty now would be to obtain the lead wire and new unheaded cases.—A. H. B.

## LOADS FOR .220 SWIFT

"I recently became the owner of a Model 70 .220 Swift equipped with a 10-Power Lyman Target Spot Scope. I have shot many chucks with my Model 54 Hornet, but always wanted the Swift for the longer ranges, and, although I haven't had the chance to shoot the Swift very much, what shooting I have done has been very satisfactory to me.

"In the October issue of *Outdoor Life* is a very interesting article, 'Everybody Needs Three Rifles,' by William Corson. I am very much interested in prolonging the barrel life of my Swift by shooting lighter loads on chucks that are in the 100- to 150-yard range. Corson, in his article, suggests a load that is similar to the 2-R Lovell cartridge, which will give about 3200 foot seconds velocity with a 50 grain bullet. I would like to get your advice on loading the .220 Swift case so that I would get approximately 3200 foot seconds with a standard hollow-point bullet that is now on the market.

"To make a long story short, I want to do some handloading and it will be my first attempt. I am getting Belding & Mull equip-

ment for the job. If you can tell me the type of powder charge by maker's name and number, and the amount in grains, also the source of bullets, such as 48 grain hollow point, I will be very thankful."—JAKE WELLMAN, Petersburg, Ind.

**Answer:** With the 46 grain bullet seated to a depth of .175 inch ahead of 25 grains of Hi Vel No. 3 you should get 3050 foot seconds muzzle velocity. Vernon D. Speer, 1522 G Street, Lewiston, Idaho, may be able to sell you the 46 grain soft-point bullet. I know that he is selling such a bullet weighing 45 grains which would tend to boost your velocity slightly, but not over the desired 3200 foot seconds. With 25 grains of Lightning powder behind the 46 grain bullet, you should get 3200 foot seconds muzzle velocity from a 26-inch barrel. However, I suggest that you use the loads first mentioned.—J. S. R.

## RECHAMBERING THE ARISAKA 6.5 MM.

"There are quite a few returned vets in town with Jap .25 caliber rifles who have been advised by a local sporting goods store and gunsmithing establishment to bring them in to be rechambered for the .257 Roberts cartridge. This local expert has advised that this will make an excellent gun and that when finished he will place ten successive bullets through a six-inch bull at 100 yards; in fact, he will bet money (more than most of us have). He rechambered my gun and on shooting it I found the cartridges ruptured, the rifle had 50/1000 too much head space, and that the bullets keyholed. He admitted the error in head space and when I showed him how loose the .25 caliber bullets fitted in the barrel he claimed they would expand when fired and fill the grooves. The Jap carbine I supplied was brand new and I don't like to see it ruined, but hate to complain until I am sure that I am right."—JOSEPH M. TRETHEWEY, Salt Lake City, Utah.

**Answer:** I am not surprised that the results were unsatisfactory when you had your Jap Arisaka 6.5 mm. rifle rechambered for the .257 Roberts.

The bullet diameter of the .257 Roberts is .257 while that of the 6.5 mm. Arisaka bullet is .262. Your bullets would be a very sloppy fit in the bore and that is undoubtedly the reason they are keyholing. If the head space is excessive, it is the fault of the chambering job, because the .257 case is larger in every respect than the Japanese 6.5 mm.—E. B.

## ALTERING SERVICE BULLETS

"Recently I was at a rifle range where some deer hunters were sighting in their favorites to be sure all was well. A few had the Army .30-'06 rifle and had filed about ⅛ of an inch off the points on the standard Government cartridge to use as a sporting load. Some had filed across, others had drilled a small hole down into the lead to give them a mushroom effect on contact. However, one man claimed that if the Government ammunition was cut, as mentioned above, there was a possibility of the lead shooting through and leaving the jacket of the bullet in the bore of the gun, and that the next shot would be fatal.

"Please advise me whether or not this is true."—ABRAM B. SMITH, Milwaukee, Wisc.

**Answer:** Cutting off the tip of the bullet ⅛ of an inch and drilling a hole with 1/16-inch drill ¼ of an inch deep will make a good


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The heavy, crude, badly sighted guns that the early colonists brought from Europe simply did not fill the needs of the American frontier of 1700, and our pioneer ancestors looked to the gunsmiths around Lancaster, Pennsylvania, for the rifle they needed. Today these rifles are prized possessions of shooters everywhere. And the one authoritative book about the Kentucky rifle and pistol will be prized by everyone who is fortunate enough to get a copy.

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Ten dollars may seem like a big price for a book (production costs make it necessary), but you can smoke and drink away ten dollars in a few weeks—or one night if on a bender—and have nothing to show for it. But ten dollars spent for a copy of "The Kentucky Rifle" will give you a lifetime of pleasure that you can pass on to a friend, son or daughter at anytime and give them years of pleasure. . . . You'll be delighted—and so will they—to own a book that you can be proud to display in your home and show to your friends . . .

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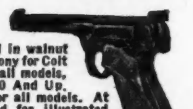

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expanding bullet out of a Government service load. With boattail bullets, that is the M1, this is quite safe, but with the flat-base bullets there is some faint possibility of having the lead blow through and leave the jacket in the barrel. If this happens and another shot is fired without removing the jacket, the result would be a burst barrel or a bulge in the barrel at the point where the jacket had been lodged.

While this is a possibility, the danger of having it happen is very remote. A barrel bulged, as mentioned above, shoots with about the same accuracy as it did before, but very few riflemen would be satisfied with it.—J. S. H.

## CARBINE NOT A DEER GUN

"For your information and to throw more fuel on the fiery argument on the caliber of rifle necessary for deer hunting I am enclosing a clipping from *Stars and Stripes*. It will be noted the .30 caliber carbine is definitely not a deer gun according to the standards set by the Army in Germany. This will raise many loud wails from those who insist that the Army's .30 caliber carbine is a 'sweet little deer gun.' Personally, I am against it as a deer gun."

"SOME TIPS TO G.I. HUNTERS"

"Many soldiers are trying to shoot deer with carbines, when only M-1s or larger caliber rifles are allowed. Many foresters are complaining of finding the carcasses of deer which were wounded by carbine bullets but had strength enough left to find shelter and die there. In addition to being needlessly cruel to the animals, this is a waste of meat."—W. A. COCHRAN.

## RIFLE SHIPPING KINK

"Here is a suggestion which may save some fellow member of the NRA labor and money in shipping guns to others, particularly military rifles which do not take down readily, or are still long when the stock is removed.

"I cut two 1" x 4" boards, preferably of white pine or other light wood, one inch longer than the entire length of the arm. Then I cut two pieces of the same material from 8 inches to 9¾ inches in length and nail them across the ends of the longer pieces to make an open frame, edges up.

"Next I procure a large paper box and after spreading it out flat, lay the frame on it and mark a section three inches wider and three inches longer than the frame. Then I tack it on the top edges of the frame in a few places with No. 10 tacks, fold it over and tack every eight inches or so along the sides of the frame as well as the ends. This ties everything together and makes a carton which is amply strong with a minimum of weight and about the least possible cost of materials."—L. O. PETERSON, La Fayette, Ind.

## DISMOUNTING SAVAGE AUTOMATIC PISTOL

"I have a .32 caliber Savage automatic pistol What is the procedure to strip this gun so the barrel can be removed?"—GLENN J. WISE, South Bend, Ind.

**Answer:** To dismount your Savage automatic pistol, remove the magazine, draw the slide all the way back as far as it will go and turn the safety to the rear, which will hold the slide in that position. Grasp the projecting breech-

block with the thumb and forefinger, pressing on the knurled head of the hammer so as to compress the mainspring as much as possible and give the breechblock ¼ turn in a clockwise direction, draw it to the rear and remove it. Then grasping the butt of the pistol with the right hand and the slide or barrel assembly with the left, push the safety back to its forward position and draw the slide and barrel assembly off the frame.

To assemble, reverse these directions.—J. S. H.

## GUNSMITH TRADE DOPE

**F. Theodore Dexter**, Topeka Kansas, has just sent us a copy of his 1946 edition of the Antique Arms Collector & Service Exchange Directory and Pictorial Type and Value Guide for Americans Purchasing Arms in Europe. This 47 page pamphlet, which sells for $2.00, illustrates 57 antique arms and gives an estimate of the value of each. It also lists some 1300 arms collectors by name and address.

☆ ☆ ☆

**The Kimball Arms Company**, of Woburn, Mass., has sent in a copy of their 39-page catalog of Antique and Modern Arms. The catalog, which may be had from the company for 25¢, features The Brown Collection of Kentucky rifles and pistols and some foreign arms of museum quality.

☆ ☆ ☆

**Crest Engineering Co.**, Minneapolis, Minn., has sent in samples of the Dry-Bor Dehydrator Cartridge in 12 gauge shotgun size. Dry-Bor is a plastic container shaped like a 12 gauge shotgun shell containing silica gel. Silica gel will absorb considerable quantities of moisture. When placed in the breech of a gun with a special stopper in the muzzle all moisture in the bore is absorbed and as corrosion only takes place in a moistened atmosphere, the bore is protected. The silica gel is colored blue by a chemical substance that turns pink as soon as it becomes saturated with moisture. When this occurs the cartridges can be dried out in an oven and the blue color will reappear.

The plastic muzzle stopper has a red rim to warn the user to take it out before shooting. We fired a couple of shots with these stoppers purposely left in place just to see if there would be any effect on the gun muzzle and nothing happened. We suggest, however, that you always be careful to take out the plug before firing.

☆ ☆ ☆

**The Gunroom Booksellers** of North Castine, Maine, is one good place to look for those out-of-print and hard-to-get books on shooting. Allen P. Wescott, the proprietor, just recently sent us his latest list of books for the outdoor sportsman. Quite frequently a rare book can be obtained from this source.

☆ ☆ ☆

**Whiteman Tool**, manufacturer of Wellsville, Ohio, is now in the hands of J. R. Whiteman's son Ernest, who writes that he is "equipped to turn out the same fine checkering tools as Father turned out in the past."


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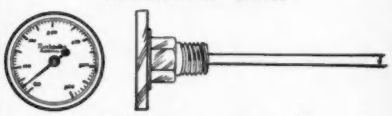

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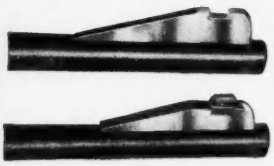

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**Limited quantity 6X30 with case, optically perfect, good used condition, tax included. 6X30 $45.00. 7X50 $95.00.**
**52 Winchester standard, 48J, 17A, good $59.00, excellent $69.00.**
**8 MM. Mauser sniper rifle, bore perfect, good out, fine 4X (Zeiss type) scope and Q. D. mount, sling, caps, original, as issued, $100.00.**
**Dozens of military pistols in stock, write your wants.**
**B. & M. loading tools, $19.50. B. & M. powder measures, $10.00. Meepos and Pacific tools in stock.**

**AURAND'S**
229 E. Third St. Phone 3406 Lewistown, Pa.

## SCOPE SERVICE — CENTER DOTS
### New Scopes and Mounts

Rifle scopes, spotting scopes, binoculars, etc. Custom scope work and alterations. German scopes a specialty. Repairing, cleaning, adjusting. Rebluing and refinishing in baked enamel. Reticules & Nylon crosslines. Hardcoating. Center dot folder and prices on request.

CUSTOM TELESCOPE SERVICE
P. O. Box 81 Silver Spring, Maryland

## GUN CASES

We offer for immediate shipment NEW U. S. ARMY PARACHUTIST Gun Cases suitable for takedown Shotguns and Rifles. 10" x 39" over-all measurement. O. D. Heavy Canvas, thickly padded, strongly reinforced. Double handle, with extra duty, full length zipper. POSTPAID . . . . . $3.75

PARKER-WHELEN CO. 827 14th St., N.W., Wash. 5, D.C.


**Hand Loads for the .22 Varminter** by Harold W. Vaughn, Glouster, Ohio, is a pamphlet containing six pages of recommended handloads. The last page states that every load given in the folder is checked and approved by J. E. Gebby. The pamphlet sells for $1.00.

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**T. O. Thomas,** Route 2, Sandpoint, Idaho, writes that he is set up for all general gunsmith work. He specializes in Mausers rebarreled and chambered for most popular calibers. He also does bolt alterations and makes special sights and gun parts.

☆ ☆ ☆

**Walter D. Pettis,** Oxford, Minnesota, is making special long-spout funnels attached to a section of cartridge case to facilitate water cleaning the bore after using corrosive primers. The funnel spout is long enough to pass entirely through the action and the section of the cartridge case will hold it in place, thus preventing spilling water into the action parts.

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**Richard Hynes** of Palmyra, New Jersey, has been recommended quite highly by Lieutenant of Detectives (Philadelphia) George R. Spangler, for his exceptionally good (metal) gun work. Special reamers were made by Mr. Hynes, including special dies for the Pacific reloading tool, to go along with this special chambering job. See the Hynes gunsmithing ad in the January Arms Chest.

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**Charles W. Crowe,** 2426 W. Compton Blvd., Gardena, California, is a gunsmith who specializes in shortening Enfield, Mauser, nickel-steel Springfield and Model 70 Winchester actions. From the information we have, it would seem that Mr. Crowe is well equipped to do this kind of work, completing the job by giving the shortened action a Rockwell and Magnaflux test and proof firing with a very heavy load in a .220 Swift, 60 degree shoulder case.

We understand that every action to be shortened is first checked and any found unsatisfactory are immediately returned to the owner. Some of the Mausers are found to be too soft or too hard for the shortening job.

Indications are that Mr. Crowe likes the very abrupt 60 degree shoulder case. He has three conversions—.220 Swift, .257 Roberts, and .300 Magnum—in which factory loads can be used. There are also two complete wildcats with the 60 degree shoulder. These are .25 and .270 caliber based on .300 Magnum shortened cases.

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**C. R. Pedersen & Son,** Ludington, Michigan, announce that they have a complete gun repair service—doing rebarreling, restocking, rebluing, sight and choke mounting, and general gunsmithing. They plan to specialize in remodeling military and commercial rifles.

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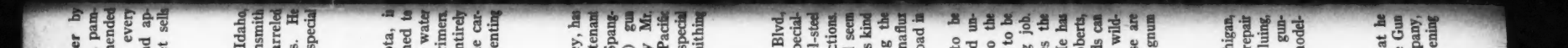
**Martin (Moose) Taylor** writes us that he has severed connections as manager of the Gun Department of George H. Cheatham Company, Detroit, Mich., and will announce the opening of his own gun shop this month.